MARCH,
1942

SCHOOL OF GRADUATE STUDIES
ANN ARBOR
INSTITUTE FOR HUMAN ADJUSTMENT
SPEECH CLINIC
1007 EAST HURON STREET

The JOURNAL of SPEECH DISORDERS

Editor
G. OSCAR RUSSELL, PH. D.
Ogden, Utah

Official Publication of the American Speech Correction Association in its 15th year.
Volume 7 : Number 1

$3.00 per Year

CONTENTS

Diagnostic and Clinical Procedures in Rhinolalia, *Henry M. Moser* 1

Apparatus for Demonstrating Nasality ..... *Lee S. Hultzen* 5

Hearing Acuity in Young Children ..... *Harold Westlake* 7

Investigations in the Etiology and Nature of Dysphemia and its Sympton, Stuttering ..... *Bryng Bryngelson* 15

Book Notice 28

A Contribution to the Genesis of Speech Movements and the Etiology of Stuttering ..... *Hide Helen Shohara* 29

Auditory Memory Span for Speech Sounds of Speech Defective Children Compared with Normal Children, *Ruth Watt Métraux* 33

The Effect of Maturation upon Defective Articulation in Elementary Grades ..... *Vivian Roe and Dr. Robert Milisen* 37

A City and County Speech Re-education Program, *J. Adelbert Young* 51

The Speech Clinician and the Classroom Teacher Co-operate in a Speech Correction Program ..... *Myfanwy E. Chapman* 57

Amendments to By-Laws 61

American Speech Correction Association:

List of Members, 1942 66

Officers, Standing Committees and Places of Annual Meeting ..... Inside Back Cover

THE JOURNAL OF SPEECH DISORDERS is published quarterly in March, June, September, and December of each year by the American Speech Correction Association; $1.00 a copy, $3.00 a year (Canada and foreign, $3.50). All communications and subscriptions should be sent to the editorial and business office, Utah State Research Laboratories, 20th Street and Monroe Boulevard, Ogden, Utah.

Entered as second-class matter at the Post-Office in Columbus, Ohio, under Act of Congress of March 3, 1879.

The JOURNAL *of*
SPEECH DISORDERS

Volume 7 MARCH, 1942 Number 1

DIAGNOSTIC AND CLINICAL PROCEDURES IN RHINOLALIA

HENRY M. MOSER,
University of Michigan

Many pieces of apparatus have been described in the literature for the diagnosis and treatment of the rhinolalias. The wide variety of devices and the discussion of principles upon which exercises are based indicate the importance of such equipment in clinical practice. Consider the use of devices in the following stages of procedure:

DIAGNOSIS. Devices are valuable aids in supplementing inspection and perception to determine the type, the degree, and the cause of the rhinolalia. They are practically indispensable in separating those cases described under the heading of cul-de-sac resonance; those cases having nasal quality even though the palato-pharyngeal valve is effectively closed and where entirely different treatment is indicated.

ACQUAINTING THE OLDER PATIENT OR THE PARENTS OF THE YOUNGER PATIENT WITH THE PROBLEM. Devices objectify our explanation of the mechanism of speech, revealing specifically what is wrong and what must be done to remedy it.

DEVELOPING PALATO-PHARYNGEAL EFFICIENCY. Numerous devices and exercises, principally of the blowing type, strengthen the muscles, massage, and develop voluntary control to increase the efficiency of the palato-pharyngeal valve so that air can be concentrated in the mouth.

TO CHECK PROGRESS. Certain devices of a quantitative nature indicate the amount of nasal emission; others are capable of producing permanent records. These are valuable for our files and especially for motivation of the patient in that they enable him to see that he is making progress. They form valuable additions or accompaniments to periodic phonograph recordings.

TO ASSOCIATE AUDITORY IMPRESSIONS WITH THE ACTION OF THE PALATE. Devices are of special help in discrimination techniques and other forms of ear training. They enable the patient to recognize the old, undesirable habits, and aid him in forming the new movements. They continue to function after the ear is fatigued and act as reliable censors for practice outside the clinic.

Unquestionably, there are original devices and useful modifications of older techniques in use in clinics today whose publication would profit the profession.

The purpose of this paper is to consider classification of these devices. It is hoped that omissions will prompt others to supply valuable additions.

Have you ever thought of the sight of all of these devices, and tests collected in one room? Suppose you were presented with the problem of classifying them? It would be unsatisfactory to arrange them according to the stages of procedure already mentioned since all of them would be more or less useful in several stages. We would see that some of them appeal to certain senses as the visual, the auditory, the tactual, the kinnesthetic and others engage as many senses and fancies as possible; some would be only qualitative in that they would show only the presence or absence of nasal emission, others would be quantitative, and some of these would produce permanent records; some would be more sensitive than others and some would be adaptable to differential diagnosis as in the rhinolalia clausas; some would be useful for adults but impractical or dangerous for children, others would have particular fascination for children; some would involve expensive apparatus and complicated set-ups thereby restricting their use to large clinics, others could be constructed at very small cost and could be readily provided in the home.

If we would eliminate those blowing and sucking devices used to measure and develop palatal efficiency and those tests not involving speech, in other words if we consider only the devices used with speech testing material, all of these nasal emission indicators or nasometers would fall into one of the following classifications:

I. Those Equipped with Nasal Olives

This apparatus is equipped with either one or two glass olives that are inserted into the nostrils to concentrate air for effective recording. While a pair of olives will concentrate all the air escaping through the nose, the use of a single olive is usually preferred for two reasons. First, speech is not so distorted and second, it is advisable to test each nostril separately for there may be an aperta condition in one nostril and clausa in the other. The disadvantage of this equipment is that the olive is a foreign body and the patient may make adjustments.

Flame Tests. The simplest form of this test employs a candle, a short piece of rubber tubing and a nasal olive. One end of the tubing is connected to the nasal olive and the other end held level with the flame of the candle. The flame is diverted by the emission of air through the nose. This test is more effective if the flame is supplied by an alcohol or coal-oil lamp surrounded by a glass chimney to eliminate currents of air in the room. The rubber tubing is brought to a level with the flame by means of a glass tube running through the chimney or by curving a piece of brass tubing through the base of the metal chimney holder. The tubing may be soldered into position so that further adjustments are unnecessary. Perhaps the most complicated form of this test is the manometric flame test. This consists

of a metal box divided into two compartments by a diaphragm. Gas enters one compartment and escapes in a flame at the top of the same compartment. The other compartment is connected with tubing leading to the nasal olive. Slight pressures on the diaphragm change the volume of gas in the gas compartment and are indicated by a rise and fall of the flame. A rotating mirror makes this alteration into a visible wave and permits recording by photography.

Diaphragm Tests. Rubber tubing may be connected with a recording tambour covered with rubber dam or some bellow-like diaphragm that moves a lever. Nasal emission is indicated by the stylus on the end of the lever arm. This may be recorded on a kymograph to produce a permanent record. Other examples of this test use the phoneloscope with its light weight mirror system and the aneroid barometer.

Blowing Tests. The rubber tubing may be directed to bits of light material placed on a highly polished surface. Usually this test employs a glass chimney with a glass rod running through one side. A feather, a pith ball, or a piece of paper is suspended over the open end. A delicate pin wheel may be used.

U Tube Test. Rubber tubing is connected to one end of a glass "U" tube in which is poured a quantity of some fluid. Emission of air moves the water in the tube. The sensitivity of this test may be increased by bending the open arm away from the vertical position.

Level Nasometer. There are two forms of this test.

A. A glass tube connected to the rubber tube leading to the nasal olive extends into a vessel filled with water. Water rises in the tube but will be forced down with the emission of air. If the pressure is great enough bubbles will be produced. The tube may be marked and if placed near the edge of the vessel will serve as a quantitative measure of small pressures. This has been described as bubble apparatus and some suggest using soapy water to produce soap bubbles.

B. An elongated "U" shaped piece of tubing is tilted slightly so that a small quantity of alcohol or oil will run to one end of the bottom of the "U." The lower open end is connected to the rubber tubing. Small pressures will push the fluid to the other end of the bottom of the "U" where the fluid will break and the air escape. The sensitivity of this apparatus can be controlled by adjusting the angle of the bottom of the "U." This apparatus can be inserted into a projector and magnified upon a screen.

Stethoscope Test. The bell or diaphragm is removed and supplied with a nasal olive or two nasal olives may be connected to the stethoscope phones. This test is particularly reliable in testing individual sounds. Any nasal escape is indicated by a harsh sound. The patient can use this equipment upon himself and on normal speakers for comparison.

Electric Nasometer. An example of this piece of equipment was designed by Professor Vincent Jukes of Ohio University and has been in use at our clinic for a year. The amount of nasal emission is indicated upon a dial. This test is particularly valuable as a quantitative test. Professor Jukes is making certain changes in this apparatus and it will be described shortly in the literature.

II. Tests Recording from the Surface of the Nose

Stethoscope Test. The probe or button of an intercostal stethoscope is placed against the nose. The examiner listens to the vibrations as the patient speaks the test material. All nasalized sounds will be exaggerated while all others are muffled. This test is especially useful for distinguishing between the two types of rhinolalia clausa. This test may utilize an oscillograph, an amplifier and loud speaker, or the volume control indicator on recording equipment by substituting a contact microphone for the bell of the stethoscope.

Finger Vibration Test. This test is similar to the stethoscope test just described except that the appeal is tactual rather than auditory. The examiner places his fingers on each side of the bridge of the nose and attempts to feel the vibration. The main advantage of this method is that no equipment is required.

III. Tests Dependent on Blocking the Nose

Blocking or Pinching Tests. The nostrils are pinched together several times during the production of a sustained vowel. If any nasality is present the quality of the vowel will be changed. In the A-I test the vowels *ah* and *i* are repeated in sequence while the nostrils are open and when they are closed. In normal speech no differences are noted. A modification of this test has the patient close the nostrils continuously while reading test sentences. Attention is given to the acoustic effect upon the voice, feeling of fullness or pressure in the nose and the feeling of vibration or pressure on the fingers.

IV. Tests Having no Contact with the Nose

Mirror Test. A cold mirror is held mirror side up below the nostrils but above the lower lip. Any nasal emission will cloud the mirror. Care should be taken that nothing touches the face of the patient. The mirror may be held alternately under the nose and before the lips to determine through which passage the sound emerges. If this test is performed before a large mirror both examiner and patient can observe the results.

Platform Test. Holes are punched in the corner of two pieces of cardboard about the size of a playing card. A pencil is inserted through the holes and the card platforms are spaced so that one is below the nostrils and the other on the level of the lower lip. Light objects are placed on each card. Only the lower object should be disturbed in sounds having no nasal sounds.

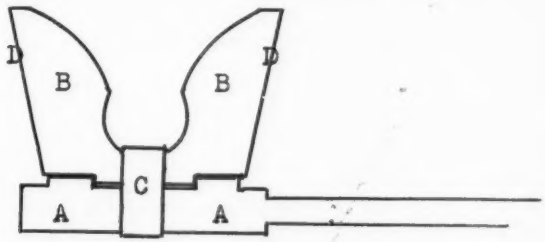
Stethoscope Test. This test is similar to that described under the nasal olive test. However, the olive does not touch the nose.

So far as I have been able to learn this is the first attempt to summarize and classify devices used in the diagnosis and treatment of the rhinolalias. Certain principles of evaluation have been suggested. It is hoped that omissions will be supplied and that this presentation may aid in further refinement and additions to this important list of devices.

APPARATUS FOR DEMONSTRATING NASALITY

LEE S. HULTZÉN,
Associate Professor of Speech and Director of the Speech Clinic,
University of Missouri

The device is merely a contact microphone with an attachment for adapting it to fit over the nose. For the apparatus as built, a Brush VM-1 "Vibromike" was used. The nose adapter was whittled out of a hard wood, and attached to the microphone by a rubber band. Balsa wood adapters proved less satisfactory, with or without metal surfaces for contact. Perhaps milled aluminum would be better. The dimensions were carefully worked out by measuring noses and trying various shapes and sizes. The best notch was 22 mm. deep, 35 mm. wide at the open end, with a slightly convex curve to 11 mm. wide at a point 12 mm. from the opening, and a wide deep cut to the closed end. The sides were padded (with corn pads) so that the device could be held on the nose without picking up much noise from the fingers. Hooks were placed on the sides so that it could be fastened on the nose by strings or rubber bands.



Rough sketch of device for demonstrating nasality. Actual size. A—Contact microphone, with cord to amplifier; B—Attachment to fit over the nose; C—Band to fasten B to A; D—Sides to which pads or hooks or both should be attached.

To use the apparatus, the demonstrator, who must be able to control his velum and the amount of nasality in his vowels at will and who must have practiced in advance to determine the setting on the amplifier he is using, plugs the microphone line into an amplifier with loudspeaker, holds the device on his nose, with the contact surfaces firmly against the edge of the bone, and reads a nasal free passage. With the controls properly set there should be so little sound coming through

the loud-speaker that it is dominated by the actual voice. Then he reads the same passage with his velum well dropped, and the microphone picks up the added nasal resonance so that the sound coming from the loud-speaker does all the demonstrating necessary.

The demonstrator should point out that this type of microphone picks up only vibrations of the surfaces it touches; when attached to the nose only nasal tones. (If this is not absolutely true, it is true enough for the purpose.)

Next the person who is to be convinced of his or her nasality is asked to read the nasal free passage with the device on his or her nose. Usually the conviction is immediate and complete. It is only necessary to explain that it is the amount of sound picked up that measures the extent of the nasality, not the quality of the sound coming from the loud-speaker; and to demonstrate that a nonnasal person can speak out loud without putting much noise through the apparatus. Those few people whose hearing does not serve adequately for the discrimination, may be convinced by watching a volume indicator on the amplifier; the quantitative indication is fairly reliable.

The demonstrator can also open his mouth wide so that the correlation between raised and lowered velum and nonnasal and nasal tones can be observed. When the apparatus is used in the routine of correction, this observation, with the practicer watching his own velum in a mirror, is particularly helpful. He may also see the correlation objectively by checking with a volume indicator.

Demonstration by making recordings of what is picked up by the contact microphone has not worked out well, apparently because the microphone does pick up speech, even that which is not very nasal, and when there is no actual voice to drown out what is recorded, the nasal pattern sounds merely louder rather than nasal.

HEARING ACUITY IN YOUNG CHILDREN

HAROLD WESTLAKE
Department of Public Instruction,
Harrisburg, Pa.

Normal hearing acuity has been studied rather carefully in recent years. Probably the biggest impetus has been the development of the pure-tone audiometer. With instrumentation for exact measurement of specific frequency came the necessity of establishing a reference level so that individual audiograms could be evaluated in terms of variations from a norm. The Western Electric Company accepted as such a reference level what seemed to be the lowest energy level at which the normal ear could detect sound at each frequency, and the Western Electric 2-A audiometer was calibrated so that the zero line represented this normal threshold.

This Western Electric norm was based on the measurement of thresholds for air conduction of 82 ears of 41 adult employees at the Bell Telephone Laboratories, 21 men and 20 women. All of these individuals regarded their hearing as normal and the ears were found to be normal physically as determined by otoscopic examination. All measurements were made in sound-proof rooms.

A National Health Survey (1) tested the validity of the 2-A norm by obtaining audiograms on 1,242 individuals of all ages and both sexes, all of whom had a history of normal hearing for speech. The results of this study would indicate that the 2-A scale is properly adjusted on the four frequencies 64, 128, 1024, and 2048, but frequencies 256, 512, 4096, and 8192 are approximately 5 db. too weak.

The problem of establishing a normal reference level extends much further than determining one line, since it is well known that hearing acuity varies with age. As early as 1872 Blake (2) published data which showed that the upper limit of hearing is shortened with advancing age. Wolf (3), Zwaardemaker (4), and Bezold (5), all published observations on changes in acuity with increasing age. These early observations were recently confirmed by Guild (6), Fowler (7), and Bunch (8). The variations in hearing acuity which are encountered at the far end of the life span seem to be pretty well charted.

The changes in acuity at the early end of the life span have not been so carefully determined. In Bulletin No. 5 of the National Health Survey (9) a report is made on an extensive study of normal hearing at each decade of life. The number of children under ten years of age who were reported was 316. As a group their acuity seemed not to be different from that of the young adult division, and the conclusions of the study make no observations on special characteristics of a norm for children in the first decade. No information is given to show the

age spread of the children whose audiograms were taken, other than that they were under ten years of age.

In the *Journal of Speech Disorders* of March, 1939, Martha Ellen Black reported norms for children from ages four through eight, and those norms appeared to be quite different from the generally accepted 2-A reference line. The median hearing thresholds as reported on seventy-seven children would indicate that at these ages the thresholds for frequencies 64 and 128 are twenty decibels below those for normal adults, thresholds at 256 and 512 are twenty-five decibels below. In other words, if the audiogram of a child of five shows a twenty-five decibel loss at 512 by the standard W. E. chart, we should consider that as normal for that age. Besides having clinical significance, the conclusions of this study suggest that a careful charting of hearing acuity of young children might reveal significant developmental data.

The audiometer testing which is here reported was not begun with the purpose of establishing acuity norms for young children. The difficulty of testing children and the consequent uncertainty of the validity of the results prompted setting up a program of measuring the hearing of pre-school and early-school children in order to progress toward these ends: 1) To gain extensive practice in testing young children; 2) To measure the reliability of tests administered on young children; and 3) To work out a procedure for testing these young children. The data gathered is here given a different organization which will present additional information on normal hearing in young children.

In all, 875 children were tested, 75 of them being younger than four years of age, and 100 being included in each of the year groupings from four years through eight years. All those whose audiograms are included had had no history of hearing difficulty or of hearing pathology. In the National Health Surveys (1 and 9) referred to above, audiograms which showed a cumulative loss over the entire range of frequencies of 20 decibels for both ears were not accepted. This procedure was not followed since it would automatically invalidate comparison with previous studies. Any child who proved to be co-operative was included if his history did not disqualify him.

One Western Electric 6-A audiometer and one 6-B were used for the testing. The outputs of the machines were carefully checked, and a series of tests on adults who were known to have normal hearing was run simultaneously to check against deviations characteristic of either machine. The testing rooms were not sound-proof, but they were very quiet and testing conditions were satisfactory.

The following tables represent the distribution of the thresholds for the various frequencies. The distribution for each age group is presented in a separate table and the arithmetic means are given below each frequency column. Table VII represents all arithmetic means for the different age groupings.

TABLE I

DISTRIBUTION OF MEASUREMENTS OF AUDITORY ACUITY BY AIR CONDUCTION FOR 150 EARS OF THREE-YEAR-OLD CHILDREN WITH APPARENTLY NORMAL HEARING IN BOTH EARS

HL	FREQUENCIES							
in db	128	256	512	1024	2048	4096	8192	9747
—10	0	0	0	0	0	0	0	0
— 5	0	0	0	2	3	9	2	0
0	9	13	11	51	38	31	41	7
5	21	31	27	46	52	62	52	31
10	38	38	39	37	42	29	39	57
15	56	43	54	12	11	16	12	43
20	23	23	17	2	4	3	4	12
25	3	2	2	0	0	0	0	0
M	12.400	11.267	11.500	5.400	6.067	5.700	6.000	10.730

M is the arithmetic mean.

TABLE II

DISTRIBUTION OF MEASUREMENTS OF AUDITORY ACUITY BY AIR CONDUCTION FOR 200 EARS OF FOUR-YEAR-OLD CHILDREN WITH APPARENTLY NORMAL HEARING IN BOTH EARS

HL	FREQUENCIES							
in db	128	256	512	1024	2048	4096	8192	9747
—10	0	0	0	8	6	2	1	3
— 5	0	4	3	23	28	16	16	6
0	39	47	58	71	65	78	54	39
5	62	59	42	68	73	69	65	71
10	73	72	76	19	20	31	56	66
15	19	15	17	11	7	4	8	13
20	7	3	4	0	1	0	0	2
25	0	0	0	0	0	0	0	0
M	7.335	6.400	6.475	2.500	2.950	3.075	4.575	5.950

M is arithmetic mean.

TABLE III

DISTRIBUTION OF MEASUREMENTS OF AUDITORY ACUITY BY AIR CONDUCTION FOR 200 EARS OF FIVE-YEAR-OLD CHILDREN WITH APPARENTLY NORMAL HEARING IN BOTH EARS

HL	FREQUENCIES							
in db	128	256	512	1024	2048	4096	8192	9747
—10	0	0	0	10	11	8	0	0
— 5	0	12	10	65	68	27	33	29
0	42	59	58	52	63	73	67	67
5	61	67	63	68	47	65	74	78
10	65	48	57	4	9	23	16	19
15	20	12	11	1	2	4	9	5
20	12	2	1	0	0	0	1	2
M	7.475	4.870	5.010	.350	.075	2.000	2.600	2.750

M is the arithmetic mean.

TABLE IV

DISTRIBUTION OF MEASUREMENTS OF AUDITORY ACUITY BY AIR CONDUCTION FOR 200 EARS OF SIX-YEAR-OLD CHILDREN WITH APPARENTLY NORMAL HEARING IN BOTH EARS

HL	FREQUENCIES							
in db	128	256	512	1024	2048	4096	8192	9747
—10	0	0	0	16	14	5	0	2
— 5	18	21	17	62	66	47	31	31
0	51	61	43	71	81	76	69	62
5	64	58	71	38	31	62	73	67
10	52	47	54	12	5	9	21	32
15	11	13	12	1	3	1	4	6
20	4	0	3	0	0	0	2	0
M	4.475	4.250	5.750	.775	.010	.650	2.600	2.850

M is arithmetic mean.

TABLE V

DISTRIBUTION OF MEASUREMENTS OF AUDITORY ACUITY BY AIR CONDUCTION FOR 200 EARS OF SEVEN-YEAR-OLD CHILDREN WITH APPARENTLY NORMAL HEARING IN BOTH EARS

HL	FREQUENCIES							
in db	128	256	512	1024	2048	4096	8192	9747
—10	0	0	0	13	9	3	0	2
— 5	20	21	25	61	58	52	21	29
0	49	51	62	77	63	63	81	72
5	63	76	63	36	59	69	73	67
10	57	39	41	10	8	11	23	24
15	9	11	8	3	2	2	2	5
20	2	2	1	0	1	0	0	1
M	4.750	4.350	3.750	—.550	.225	.975	2.600	2.525

M is arithmetic mean.

TABLE VI

DISTRIBUTION OF MEASUREMENTS OF AUDITORY ACUITY BY AIR CONDUCTION FOR 200 EARS OF EIGHT-YEAR-OLD CHILDREN WITH APPARENTLY NORMAL HEARING IN BOTH EARS

HL	FREQUENCIES							
in db	128	256	512	1024	2048	4096	8192	9747
—10	0	1	0	11	3	4	1	1
— 5	29	28	23	63	52	47	34	27
0	57	43	59	68	70	71	73	63
5	78	89	81	45	59	60	71	69
10	29	33	31	9	13	16	14	29
15	5	6	5	4	3	2	6	8
20	2	0	1	0	0	0	1	3
M	3.050	3.600	3.475	—.025	.900	1.075	2.150	3.350

M is arithmetic mean.

TABLE VII

ARITHMETIC MEANS OF DEVIATIONS FROM THE W. E. REFERENCE LINE FOR ALL AGE GROUPS

Age Group	Frequencies							
	128	256	512	1024	2048	4096	8192	9747
3	12.400	11.267	11.500	6.430	6.067	5.700	6.000	10.730
4	7.335	6.400	6.475	2.500	2.950	3.075	4.575	5.950
5	7.475	4.870	5.010	.350	.075	2.000	2.600	2.750
6	4.475	4.250	5.750	.775	.010	.650	2.600	2.850
7	4.750	4.350	3.750	—.550	.225	.975	2.600	2.525
8	3.050	3.600	3.475	—.025	.900	1.075	2.150	3.350

Analysis of these tables seems to offer little justification for believing that the acuity of the children in the age groups five, six, seven, and eight varies significantly from that of the normal adult. There is some deviation from the reference level of the 2-A, but such deviations in most cases fall within the limits of the corrections to the 2-A line as suggested by the National Health Surveys. The average deviation from the W. E. norm is greater for the two younger age groups, but it would be difficult to label that as evidence of reduced acuity for these ages. Poorer auditory discrimination or testing technique might account for the differences. Table VII might be interpreted by some as indicating reduced acuity in the younger groups for extreme tones at both ends of the frequency band. However, it was the feeling of the tester that these tones were difficult for the children to isolate, and that more than pure acuity functioned there.

Further reason for believing that the wider distributions of the thresholds for the younger age groups is due to other factors than acuity alone lies in the attempt to determine the reliability of the responses by repeating the tests and comparing the thresholds as determined on the first and second tests. One-half of the audiograms for each age group were selected at random from the separate bundles of audiograms and the right ears of those children were tested a second time.

The results of these repeat-tests are represented on the tables below. The number of instances in which the same and different thresholds were found is given for each frequency. The column labeled "db." on the extreme left of each table indicates degrees of variation between the first and second thresholds.

TABLE VIII

DEGREE OF VARIATION BETWEEN THE THRESHOLDS OBTAINED ON THE FIRST AND SECOND TESTS MADE ON RIGHT EARS OF 31 THREE-YEAR-OLD CHILDREN

db	Frequencies								
	128	256	512	1024	2048	4096	8192	9747	Totals
0	5	8	12	1	10	14	13	10	73
5	11	12	9	17	13	7	8	14	91
10	11	11	8	10	7	8	9	6	70
15	3	0	0	3	1	2	0	0	9
20	1	0	2	0	0	0	1	1	5

TABLE IX

DEGREE OF VARIATION BETWEEN THE THRESHOLDS OBTAINED ON THE FIRST AND SECOND TESTS ON THE RIGHT EARS OF 50 FOUR-YEAR-OLD CHILDREN

	FREQUENCIES								
db	128	256	512	1024	2048	4096	8192	9747	Totals
0	23	29	27	39	35	31	25	31	240
5	16	12	10	9	11	13	21	11	103
10	8	9	12	2	4	6	3	6	50
15	3	0	1	0	0	0	1	2	7
20	0	0	0	0	0	0	0	0	0

TABLE X

DEGREE OF VARIATION BETWEEN THE THRESHOLDS OBTAINED ON THE FIRST AND SECOND TESTS ON THE RIGHT EARS OF 50 FIVE-YEAR-OLD CHILDREN

	FREQUENCIES								
db	128	256	512	1024	2048	4096	8192	9747	Totals
0	40	42	38	43	46	42	42	41	334
5	9	6	12	7	4	5	7	7	57
10	1	2	0	0	0	2	1	2	8
15	0	0	0	0	0	1	0	0	1
20	0	0	0	0	0	0	0	0	0

TABLE XI

DEGREE OF VARIATION BETWEEN THE THRESHOLDS OBTAINED ON THE FIRST AND SECOND TESTS ON THE RIGHT EARS OF 50 SIX-YEAR-OLD CHILDREN

	FREQUENCIES								
db	128	256	512	1024	2048	4096	8192	9747	Totals
0	36	43	41	43	47	44	42	41	337
5	11	4	9	7	3	5	4	7	50
10	3	3	0	0	0	1	4	1	12
15	0	0	0	0	0	0	0	1	1
20	0	0	0	0	0	0	0	0	0

TABLE XII

DEGREE OF VARIATION BETWEEN THE THRESHOLDS OBTAINED ON THE FIRST AND SECOND TESTS ON THE RIGHT EARS OF 50 SEVEN-YEAR-OLD CHILDREN

	FREQUENCIES								
db	128	256	512	1024	2048	4096	8192	9747	Totals
0	41	46	47	46	35	46	42	43	346
5	7	2	3	4	14	3	6	7	46
10	2	2	0	0	1	1	2	0	8
15	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0

TABLE XIII

DEGREE OF VARIATION BETWEEN THE THRESHOLDS OBTAINED ON THE FIRST AND SECOND TESTS ON THE RIGHT EARS OF 50 EIGHT-YEAR-OLD CHILDREN

	FREQUENCIES								
db	128	256	512	1024	2048	4096	8192	9747	Totals
0	39	40	43	47	42	38	39	42	330
5	9	10	4	3	7	12	11	6	62
10	2	0	3	0	1	0	0	2	8
15	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0

The comparison of the thresholds obtained on the first and second tests shows that the responses of the children in the five-, six-, and seven-year groups have considerable uniformity. Differences of 5 decibels occur in 215 instances out of a possibility of 1600. Differences of 10 decibels occur in only 48 of a possible 1600 instances. Differences of 15 decibels occur in only 2 of 1600 possible instances. The thresholds of the three- and four-year groups show less stability than those of the older children but even here variations of more than 10 decibels occur in only 71 instances of a possible 648. The more frequent variation between the two thresholds of the younger children may be considered as a further indication that some factor other than pure acuity is operating in the greater deviation from the 2-A norm shown by these children.

The data which is offered should not be interpreted as suggesting that every three-year-old can be given a pure-tone test with ease. A considerable number of the children at this age level could not be successfully motivated by the tester. The data for the youngest group therefore represents some selection of the more co-operative and probably more intelligent children.

SUMMARY

1. There has been some question of the broad use of the normal reference level of the 2-A Western Electric audiometer.

2. A National Health Survey based upon tests of 1,242 individuals suggests corrections of approximately 5 db. for four frequencies on the W. E. norm.

3. Hearing acuity change with increasing age has been carefully investigated for the late portion of the life span.

4. Changes which might occur in hearing acuity at the early end of the life span have not been so thoroughly investigated. One study which was reported suggested that the W. E. reference level would not apply at all for children under eight years of age.

5. The results of the tests which are reported here do not indicate that the now accepted reference levels should be revised for children ranging from three to eight years of age.

6. Children of three and four years of age show less consistency in their responses to the pure-tone tests, and show a wider deviation from accepted normal thresholds than the older ones do, but these are very probably due to other factors than auditory acuity.

7. The responses of young children to the audiometric test show considerable reliability.

REFERENCES

(1) *Normal Hearing by Air and Bone Conduction*, Hearing Study Series, Bulletin 4, U. S. Public Health Service, 1938.

(2) **Blake, C. J.** "Statistical Report of 1,652 Cases of Diseases of the Ear," *Arch. Ophth. and Otol.*, 1873, 3, 84–102.

(3) **Wolf, O.** "New Investigations Upon the Methods of Examination and the Disturbances of Hearing," *Arch. Otol.*, 1874, 4, 67–86; 267–306.

(4) **Zwaardemaker, H.** "The Presbyacusic Law," *Arch. Otol.*, 1894, 23, 228–234.

(5) **Bezold, F.** "Einige Weitere Mittheilungen ueber die continuirliche Tonreihe," *Zeit. f. Ohren.*, 1892, 23, 254–267.

(6) **Guild, S. R., et al.** "Observations on the Pathology of High Tone Deafness," *Bull. Johns Hopkins Hospital*, 1934, 54, 315–380.

(7) **Fowler, E. P., and Fowler, E. P., Jr.** "Normal Hearing by Bone Conduction as Measured with an Audiometer," *Ann. Otol., Rhinol., Laryngol.*, 1936, 45, 756–760.

(8) **Bunch, C. C.** "Age Variations in Auditory Acuity," *Arch. Otolaryngol.*, 1929, 9, 625–636.

(9) *Normal Hearing for Speech at Each Decade of Life*, Hearing Study Series, Bull. No. 5, U. S. Public Health Service, 1938.

INVESTIGATIONS IN THE ETIOLOGY AND NATURE OF DYSPHEMIA AND ITS SYMPTOM, STUTTERING

BRYNG BRYNGELSON,
University of Minnesota

Dysphemia refers to an irregularity of neural integration in that portion of the central nervous system responsible for the flow of nerve impulses to the speech musculature. The most commonly observed symptoms of this neurologic state of the central nervous system are indicated on the midline bilateral speech structures. They occur as clonic and tonic interruptions of the breath stream, breaking the communicative act into irregular and spasmodic units noticeably different from the speech of most of us. Dr. Robert West (1) has aptly pointed out that stuttering is a phenomenon, a manifestation or a symptom of an inner condition, dysphemia. Surveys show that there are upwards of two million human beings in the United States afflicted with this disease. The disorder usually arises in childhood and remains to a rather persistent degree throughout life. Eighty-eight per cent of dysphemia has its onset in children before the age of seven. Fifty per cent of this number show signs of dysphemia at the time of beginning of speech. In our schools the number of speech defectives, excepting dysphemics, decreases with age; the number of dysphemics remains about the same throughout the first twelve years of school life.

I am interested, in this discussion, in sketching rather briefly some of the most important researches during the last two decades bearing on the nature and etiology of dysphemia. Before doing so, I wish to relate a short historical account of the way in which some rather prominent physicians, psychologists and others have speculated on this disorder. Because of the fact that writers and students of this problem have talked about the symptom and not the inner state, dysphemia, I shall use the word stuttering throughout a considerable part of this discussion.

Stuttering has been, like many other anomalies of the human organism, a subject of speculation for more than 2,000 years. It was discussed by Hipocrates, Aristotle, Plutarch, Cicero, Bacon, Galen, and by many others in early times. It was early thought to be a disease fabricated by the theory that it was instituted by gods and devils. In its sacredness it was by many superstitious physicians held to be intimately related to the soul of man. A stutterer to Hipocrates was a person with a voluble tongue and full of black bile. To Galen it seemed that stuttering was due to debility of the speech muscles from diminution of heat. Avicenna believed that humidity caused mollification of the tongue. A Frenchman ascribed stuttering to a too large quantity of humors affecting the nerves, muscles and the substance of the tongue.

Bacon thought it due to refrigeration of the tongue, whereby it was less apt to move. His remedy was moderate doses of wine. Others thought the stutterer's tongue too dry and would rub it with salt and sage. A German surgeon undertook to elevate the tongue by cutting a transverse slice, making a wedge on the tongue and sewing the edges of the gap together. Galenus believed in cauterization of the tongue. Yearsley and Braid removed tonsils and the uvula of stutterers. Gregorie recommended smoking as a sedative to the vocal bands. Gertz employed peppermint oil and chloroform to allay the spasms of the stutterer's diaphragm. This period might be referred to as that of the organicists. Surgery was the most common therapy, and the tongue seems to have come in for its share of attention.

Later there developed what might be called an era of physiologic thought about stuttering. It was noted that the speech organs of the stutterer did not function co-ordinately. There was an asynergy noted between the several systems of musculature involved in speaking. Carpenter, Hunt, Kussmal, Gutzman, Wyllie and Bell were exponents of this school of thought. The main therapy consisted of drills attempting to force more adequate co-ordination of the speech muscles. More than one organ or structure was now considered as being a part of the stutterer's malady. Then Makuen, Kenyon, Kyle, and Martin introduced a theory of causation relating to the "psyche" of the patient. Stuttering was now a physical habit due to some disorientation in the "psyche." Although the treatment was still physical, it was not long before the purely psychologic approach was dominant in the etiology as well as in the therapy of stuttering. Now stuttering was interpreted as being the result of a basic emotional instability—a "complex," social morbidity, or hyperactivity of the affective life of the stutterer. Even modern medical books, mentioning stuttering, describe it in this fashion. Although the questionnaire method was used at first, better results were proclaimed when the doctor and the patient could work clinically in conference. Mental hygiene and psychotherapy were the vogue in treatment. Fletcher (2) and Blanton were the two most outstanding exponents of this school. In crept the ideas of Bluemel and Swift. The former thought that stuttering was due to transient auditory amnesia; the latter—visual central asthenia. Images by these men were treated like specific organs had been treated at an earlier period.

And finally, psychoanalysis came in for its share of speculation on the problem. Stuttering was thought of as a psychoneurosis in which there is a stubborn sterile type of repetition of oral material that indicates oral eroticism. The stutterer does not want to spit out the words. He has regressed from the anal to the oral level and given the mouth a sphincter innervation which seems to indicate that he wishes to retain the words as "objects," using the mouth as a sphincter. A stutterer was a sort of oral masturbator. With Dr. Brill's (3) unsuccessful attempt to eradicate stuttering in sixty-six patients studied over a period of several years, psychoanalysis as a general practice seems to have largely disappeared from the clinical horizon in Speech Pathology. The only exception is Travis, who in the role of a usufructary has recently appropriated psychoanalysis.

At the beginning of the decade of 1920, Drs. Orton and Travis with the help of the graduate college and the school of medicine at the State University of Iowa launched out on the first significant laboratory studies on the problem of dysphemia, and there has now grown up a new type of speculation about dysphemia. Prior to this time essayists had for the most part been descriptive of the phenomenon, but woefully lacking in research evidence as to the nature and state of the organism of the disordered individual. The researches produced during the last two decades are all too numerous to recite in detail. I shall merely allude to the results obtained from studies of a few approached from many angles of the problem.

Stutterers have less variability in pitch of a sustained tone after an emotional upheaval than under normal circumstances. (4) Non-stutterers have more variability.

The amplitude of the achilles and patellor reflexes during the free speech of stutterers is decreased while in the non-stutterer it is increased. (5) This was thought to be significant in relation to higher and lower levels of neural activity since Travis and Dorsey (6) found that when activity is decreased in the higher levels in the central nervous system the patellor tendon response latency is decreased, and when activity is increased the reflex response latency is increased. In other words, there is something abnormal about the stutterer as indicated by reflexes even though no myospasms are clinically observable.

In the height of a tonic myospasm reflex time is reduced to as low as 6 sigma. (7) Analogous results have been obtained in alcoholic intoxication, catatonic stupor, on the paralyzed side of hemiplegias, and in depression psychosis patients.

Travis (8) found in a tonic spasm that the 8–12 per second tremors are obliterated. Stuttering in other words depresses the tremor rate. He found that a voluntary movement of a finger produced a greater per cent of tremors at a rate of 40–75 per second in the stutterers than in non-stutterers. Stuttering seems from this study to be coexistent with cortical reduction.

Jasper (9), by the chronaxie technic of relative excitability of homologous paired muscles, found that right-handed non-stutterers had a lower chronaxie on the right side than on the left for the biceps, flexors and extensors of the digits. The reverse was true of the left-handed normals, while 52 per cent of the stutterers gave no difference between the two sides of the biceps. Fifty-eight per cent gave no difference between the two sides for the flexors. The average chronaxie value on the stutterers' extensors was one-half of what it was for the same muscles for the non-stutterers.

Jasper (9) compared the visual acuity of one eye with that of both eyes of stutterers and normals. The difference between the average acuity in monocular and binocular vision is significantly greater for all groups of normals than it is for stutterers. The two eyes appear to function more in an additive manner in binocular acuity of normals than in stutterers. It is suggested in this study that there appears to be less likelihood, in the stutterer, of the synchronization of these two cerebral hemispheres in the functions involved in perception.

Jasper (9) studied the asymmetry of the perception of the phiphenomenon, between points of fixation in homonymous and heteronymous doublings. For both far and near fixations, normals experienced a consistent illusion of movement to the right. Stutterers perceived no illusion of movement or to the left or to both right and left. Here unilaterality in general neural organization appears to be expressed in the field of perception. Stutterers demonstrate a lack of unilaterality and have more ambilaterality than the ambidextrous normal. This study further differentiated between the ambidextrous normal speaker and the stutterers, in that the stutterers showed a tendency to a more left peripheral dominance while the ambidextrous normal showed a tendency to more right peripheral dominance.

In photographing eye movements of stutterers in oral reading, Jasper and Murray (10) found an automatic reflex type of movement during myospasms. Stutterers have more fixations per line than non-stutterers. They have more regressive movements. They often read from right to left. These fixations are often extremely long. In the height of a tonic spasm, binocular inco-ordination is prevalent—rigid fixation of one eye while the other eye shows very interesting vertical twitchings. The horizontal inco-ordination found in this study is characterized by either a complete independence of movement of the two eyes or a coincident extreme convergent strabismus. Interesting, too, is the fact that these irregular eye movements can be detected in photography when the stutterer is merely thinking in the solution of a problem, or in silent reading. In this experiment, stuttering seemed to be associated with a "temporary re-current reduction in the dynastic control of the superjacent levels of the central nervous system over their substructures causing general disequilibration of the orientation potentials within the nervous system necessary for efficient speech."

Breathing studies on stutterers reveal a new tremor rate on the abdomen, vertical movements of the larynx during inspiration, antagonism between the action of the thorax and abdomen (11). In adult stutterers whose ailment is of long standing, breathing records indicate stuttering movements during the anticipation of stuttering, similar to those found in the act of stuttering.

Voice studies show a marked vibrato, prolongation of tones, fluctuations of breath pressure, bizarre wave forms, before, between, and after tones (12). Rapid oscillations of breath pressure at a rate of 200 per second when the patient is not speaking have been found. These variations and phenomena have not been found to be characteristic of a normal speaker's voice, studied by similar instrumentation.

Stutterers are inferior to non-stutterers in the voluntary production of a rhythmic movement with the tongue, lips, jaws and diaphragm in a non-speaking situation (13). Stutterers give a variety of patterns in this performance while the non-stutterers' patterns vary very little.

The author's study of seventeen years ago (14) showed that stutterers show no phonetic inferiority to non-stutterers. There is no consistency in the matter of vowels or consonants giving greater or lesser difficulty. Oftentimes stutterers have difficulty on the medial and

final sound of a word as well as on the initial sound. They also vary from situation to situation.

In 1931 by means of a three-unit oscillograph the author (15) photographed the wave forms of free speech and stuttering. There are marked, pathognomonic deviations from the normal in fluctuations of breath pressure before and after stuttering as well as in the height of a myospasm. The intrinsic musculature of the larynx apparently is expressing deviations not observable clinically. It was found also that neither a stutterer nor a non-stutterer can reproduce stuttering voluntarily. This might throw some light on the theories of imitation in the etiology of stuttering.

Travis (16) found in an action current study of the masseter muscles of stutterers and normals marked differences in wave form, frequency, extent and general patterning. During stuttering these muscles give strikingly dissimilar action currents, one side large and the other small. Volleys of one side would appear at the rate of 10–40 per second, while on the other side volleys were absent or greatly reduced in size. Volleys of the two sides in the stutterer were out of phase, while they were synchronized in the normal speakers. There seems to be an independence of function in the stutterer and a concordant harmonious function of these midline paired structures in the normal speaker. Hunsley (17) found in a non-speaking situation that stutterers differ from normal speakers in the ability to reproduce a series of auditory clicks in a unit of time by means of jaw, tongue, lips, eyebrows and diaphragm movements.

Gardner (18) calls our attention to the fact that pupillary activities are source material for the study of the functioning of the central nervous system. Studies of this type are especially provocative to research because they are controlled through both the parasympathetic and the sympathetic division of the autonomic nervous system. He found that the contraction time, i. e., from latent time when contraction occurs until it reaches the lowest point for the first time, differed significantly in stutterers from normal speakers. He found also that the total amount of contraction, i. e., the amount that the pupil constricts from its dilated diameter to the lowest diameter reached during contraction was markedly different in stutterers than in normal speakers. In studying the effect of speech on the pupillary reflex, he found that there was no change in the dilated diameter from silence to speech in 54 per cent of non-stutterers, while in 100 per cent of the stutterers there was an increase. Contraction time of normal speakers' speech is less than in silence in 34 per cent of the cases, while 75 per cent of stutterers indicated this phenomena.

Studies in physical habitus (19) indicate the possibility of some constitutional determinants playing a role in dysphemia. The majority of stutterers as compared to a minority of normals fall into the leptosome group while a minority of stutterers as compared to a majority of normals fall into the pyknic, dysplastic groups. These findings may have significance for either a "personality type" for stutterers, if such there be, or the constitutional basis of stuttering itself.

Chemical and glandular studies during the last few years have indicated significant differences between stutterers and non-stutterers:

Trumper (20) in a hemato-respiratory study found a correlation between the type of breathing and the red cell count and hemoglobin content. He said that the scarcity of women stutterers is due in part to the lower viscosity of their blood which in turn is due to a lower red cell volume.

Stratton (21) found that in times of excitement there is more stuttering and less urinary creatinine—the more nearly the stutterer maintains the creatinine the better his speech.

Starr (22) reported a difference in the hydrogen ion concentration of mixed saliva of stutterers. He found a high alveolar carbon dioxide, due, he thought, to a relative insensitivity of the respiratory center resulting in an oxygen deficit and probable elaborations of toxins in the blood.

Kopp (23) more recently studied the metabolism of stutterers. They have a higher total serum calcium, inorganic phosphate, and blood sugar; a lower potasssium, protein, albumin, globulin. There is no appreciable difference in the diffusible calcium, cholesterol, or chlorides of the two groups—stutterers and non-stutterers. In general it was found that the blood pattern of the stutterers as shown by correlations of total serum calcium, inorganic phosphate, total protein, and non-protein nitrogen is practically the reverse of the pattern for non-stutterers. Kopp also found that parathyroid extract tends to relieve stuttering.

Seemann (24) reported an abnormal composition of the blood and humors, a condition which he describes as favoring an increased susceptibility to disease, in 88 per cent of 155 young dysphemics and in 85 per cent of 145 adult dysphemics. He suggested that the lability of the vegetative nervous system, which is partly primary and partly secondary, is a favorable condition for the genesis of dysphemia. He supposed that the striopallidal system plays an important role in the excessive and involuntary movements of the dysphemic's spasms.

McCullagh of Cleveland reports that in treating two cases of hyperinsulinism it was found that hypoglycemic intervals were accompanied by considerable stuttering, which cleared up completely on the use of a low carbohydrate fat diet with frequent feedings and the accompanying elevation in blood sugar levels.

Gordon of Long Island College of Medicine found that stuttering occurred during the thyroid treatment of five cases of childhood myxedema and hypothyroidism. Stuttering disappeared upon the discontinuance of the extract and reappeared on its resumption. He accounts for the spasms on the basis of excitation of the central nervous system or accelerated metabolism.

Solomon of Bellevue Hospital found two cases of stuttering in a group of twenty congenital thyroid insufficiency cases. He did not discover any stuttering in any other form of endocrine dyscrasia.

Of 29 prominent endocrinologists interviewed by Glaser (25), including the three just mentioned, no one presented any scientifically

adduced evidence which would tend to show a definite causal relationship between the two pathologies. However, six of the 29 indicated relationships which might be suggestive for further study.

Orton and Travis (26) studied the arrival of action currents in the left and right forearms of dysphemics and of right and left handed normal speakers. They found that when currents of muscular action from both arms of normal speakers are recorded during simultaneous voluntary contractions, they may appear in both arms; but in far the greater number of trials they appear in one. In right handed normal speakers, they precede far more often in the right arm; and in left handed normal speakers, they precede far more often in the left arm. In dysphemics they arrive in the left first, and they also give a larger per cent of simultaneous leads. It would appear, therefore, to the authors that in many dysphemics the motor facility as determined by training is out of harmony with the native physiologic lead.

Van Riper (27) subjected stutterers and non-stutterers to a simultaneous drawing of a kinaesthetic, visual and script pattern on the opposite sides of a vertical angle board. Right handed and left handed normals reversed the patterns with the non-dominant hand at a critical angle of 27 degrees. Stutterers varied from that of mirroring the patterns with both hands at a large angle to mirroring with the trained hand at a small angle. Often stutterers produced the patterns correctly with both hands throughout the entire 90 degrees. This study is significant in that it indicates a lack of orientation at the level of perception similar to that of Jasper's study of the phi-phenomenon. Either the stutterer appears to be equally oriented in a bilateral central symmetry or to possess a confused central sidedness.

These investigations and similar ones reported tend to point in the direction that in the dysphemic the organization in the central nervous system is characterized by a high degree of ambilaterality in contrast to a relatively high degree of unilaterality which characterizes the central nervous system organization in the normal speaker.

Thus far I have enumerated but a few of the more significant laboratory studies on dysphemics. It seems clear that during this era of research, when neurophysiologic concepts and electromyographic laboratory technics are introduced, that the phenomenon called stuttering takes on quite a different meaning to the speech pathologist. One is impressed with the fact that something unknown to the early students of this problem is being revealed which far transcends pure speculation as to what is going on organismically when a dysphemic talks.

Let us now see if there is any correlation between the findings of the laboratory studies recited and those of clinical research.

There have been numerous researches on the relationship of alteration of the native sidedness pattern and central ambilaterality to dysphemia. In 1927 at the University of Minnesota, a series of studies were begun relating to this problem, of both the questionnaire and clinical type. On the former type of investigation we now have data on 12,000 college students. It is interesting that when one uses questionnaire items of motor skills which not only are weighted but are also

tested as to reliability and validity for an adult population that dysphemics are differentiated in certain respects from the group as a whole. For example, there are six times more dysphemics among those whose sidedness has been altered than among those whose native sidedness has been allowed to express itself without environmental interference. There is 26 per cent more family history of left handedness, dysphemia, or both in the right handed dysphemic group than in the group as a whole. There are five times more dysphemics having a laterality index of .30–.79 than in the entire group. There is no significant difference between the left-handers (laterality index of .00–.29) and the right-handers in matter of history of stuttering in the family. There are two times as many students who have reading, spelling and writing disabilities in the shifted and ambidextrous group than in the group as a whole. When one uses questionnaire or performance items which are not standardized on the age group under consideration and when the items have not been subjected to test-retest reliability to at least a .95 correlation, the results indicate no significant relationships in speech and laterality.

The findings in the preliminary studies to which I have alluded are similar, on the whole, to Wallin's (36) findings in his survey of 90,000 school children. He found five times more dysphemics in the dextro-sinistral group than in the total school population. Nineteen per cent of the shifted children began stuttering after having received instruction in writing. Although Ojemann (28) preferred to conclude that the shifting act in his cases indicated no relationship between central speech disturbance and handedness, it is significant that 17 per cent of his cases had a history of stuttering.

During the last ten years at the University of Minnesota, dysphemics have been investigated clinically. By clinically, I mean dysphemics versus normal speakers have been paired as to sex, age, social and mental status, facts taken as to heredity, development and clinical tests to which the subjects were subjected, and a thorough case history with the help of parents and relatives. This method obviously is tedious and time-consuming. Although we have clinical data on file on upwards of three thousand dysphemics, our data on matched controls is not nearly as prolific. We are, however, gradually enlarging our studies on comparative norms.

With access to clinical tests and with the informational help of parents and relatives, one is able to secure far more accurate case history material and a more accurate account of the native brainedness of dysphemics and normal speakers. It is therefore to be expected that the results of clinical studies are somewhat different from those done by the survey method. Our clinical studies (29) as reported in other journals during the last five years differentiate dysphemics from normal speakers in three main aspects, namely the degree of strict one-sidedness, number whose brainedness has been altered, and the existing state of central ambilaterality. I have pointed out before that these differences are all statistically significant. My own criticism of the controlled studies so far is that we need to study many more hundreds of normal speakers and match them with clinical studies on dysphemics before we

are warranted to speak dogmatically when interpreting the results. One may be privileged at least to point to trends of possible causes and natures as well as to live in the hope that studies of this type will lead to more fruitful and everchanging truths.

In three unpublished studies, the author has found that there is 50 per cent more left-eyedness among dysphemics, who are by clinical tests left brained in motor skills, as compared with normal speakers, who are by clinical tests left brained in motor skills. Eyedness is one index of native sidedness, and so it appears that again the dysphemic falls into the mixed sidedness class. This state of mixed sidedness we have also found in many patients with disabilities in reading.

There is also a good deal of evidence that a state of dysphemia can be produced when a state of central ambilaterality is established (speech function operating from one cerebral hemisphere and motor skills from the opposite hemisphere). A specialist in England some years ago transposed the motor skills of fifteen right-handers to the non-dominant side; and all of the subjects became dysphemics. When they returned to the native side again, the dysphemia, after a few months, disappeared. In our own clinic we have observed similar experiences with three cases with similar results.

In general one might say that a great deal of evidence seems to point in the direction that ambilaterality is a differentiating factor in dysphemics. Neither side of the body appears to be clearly dominant over the other. This condition might at least be suspected of significance in relation to dysphemia—first, because of the bilateral arrangement of the neuromuscular mechanisms employed in speech; and second, because of Weisenburg and McBride's (30) rather rigorous study on aphasia. Their analysis of 98 cases of unilateral cerebral lesion shows:

(a) "Aphasia or history of speech difficulty at the time of the attack in 65 of the 67 right-handed patients, with demonstrated lesions of the left hemisphere or neurologic signs of such lesions."

(b) "Aphasia in two left-handed patients, one with a demonstrated lesion in the right hemisphere and one with a demonstrated lesion in the left."

(c) "No aphasia or history of it in 22 of the 23 right-handed patients with demonstrated lesions of the right hemisphere or neurologic signs of such lesions."

(d) "Thus among the 92 clearly right-handed or clearly left-handed patients, there are only four exceptions to the rule that aphasia appears with lesions of the dominant hemisphere as indicated by handedness, and fails to appear with lesions in the non-dominant hemisphere."

There should be no question concerning the one-sidedness of speech.

I am well aware of the fact that even among speech pathologists there has been disagreement concerning the problem of sidedness, and its relation to speech. I think it only fair to workers in this field, some of whom having been quite severely attacked, to point out that one reason for the conflict is that there are two main ways of approaching

the problem. One way is to look upon peripheral handedness as having no important connection with the motor patterns of the cerebral hemispheres, and thus conclusions are drawn from surveys employing questionnaires made up of unreliable and unvalidated items. This has been the approach of many educators and psychologists, and I dare say of a few speech pathologists. Another way is from the point of view of inherent brainedness and sidedness as studied clinically. The hand in this case is not of the greatest importance but merely a sign or symptom of a deeper nervous arrangement. The central and neurologic aspects of handedness are of importance. The hand does not always indicate the true situation to those whose greatest concern is native sidedness, of which eyedness, footedness, earedness and handedness are but symptoms. It is partly thus that a one-sided problem has been looked upon as two-sided.

One should be reminded of Orton's (31) reference to the fact of the functional supremacy of one brain hemisphere. He says, "It is essential that we bear in mind not only that it is clearly demonstrable in man, but that even in man it is only in the language faculty and the more intricate manual skills that this specialization is found and that, for many of the less complex activities of the brain the relation of the two hemispheres to each other, while a variable one, is quite different from that underlying speech, reading and writing. In the control of motion, for example, the two hemispheres operate quite independently of each other so that damage to the brain cortex of the motor area will regularly give rise to a paralysis of voluntary motion on the opposite side of the body only. Loss of complete function would necessitate destruction of similar areas of both hemispheres. This is also true of that part of the sensations of pain, touch, temperature and kinaesthesia which reaches the brain cortex."

Numerous studies have been made on the emotional and social maladjustments of dysphemics as compared with normal speakers. McDowell (32) in the early part of the 1920's found no essential difference in feelings of insecurity and personality maladjustment among stuttering children and a comparable group of normal-speaking children. Johnson (33) has studied this problem in older age groups and indicates that stutterers are essentially normal personalities aside from such emotional and social maladjustments as are centered around their attitudes toward their defect. The author's case history studies over a period of years indicate that the personality maladjustment which stutterers present appears to be largely a reaction to the frustrating and humiliating phase of tonic and clonic blocks of the speech muscles. The adult patient has usually defined his disorder as a handicap and as a mark of insecurity. Van Riper (34) points out that young dysphemics who have not been taught to feel a sense of guilt or shame because of a speech difference, and consequently have no reactions of awareness or expectancy of interrupted speech, do not show any differences in neurotic temperaments or in social maladjustments. In a sense we may have in the young child dysphemia in the raw. Their speech is accepted by them as of no social significance or as a way of talking.

The probability is that when we view an adult who has had inter-

rupted speech for many years, we do not see what Bluemel (35) has so aptly called the primary symptoms, but the secondary symptoms are clearly demarcated. Overlaid patterns of defense, ill-at-easeness, compensations, et cetera, which one might expect to develop in a sensitive person who is ridiculed, mocked, and made to feel a social outcast because of his speech difference, are descriptive of the majority of adult dysphemics. The habit part of dysphemia may well be ascribed to these secondary behavior patterns or overt symptoms promoted by the patient through his long experiences of not being able to communicate easily like most of his associates. This phase of stuttering is most clearly demonstrated when in clinical therapy one notes that concomitant with the diminution of secondary reactions the patient speaks more freely. So-called nervousness, excess muscular activity and motor overflow appear to be results rather than causes of the disorder.

The author has made a number of follow-up studies of a large group of cases over a period of years, and it has become increasingly clear that the habit patterns on the emotional level in some dysphemics imbed themselves deeply into the personality structure of the patient. It appears also that asocial conduct, truancy, even delinquency and suicide can be the end result of having to thrive as an asocial animal on habituated mechanisms of escape and avoidance of normal social responsibilities. In fact, in our adult out-patient clinic at Minnesota, we often have patients who have successfully avoided speech situations so long and so well that they deny clinical treatment and prefer to manage themselves by the use of a few tricks of deception. They even fear they might be cured.

I have indicated that we have in dysphemia—quite clearly defined—two main classes of symptoms, the primary myospasms of short repetitions and effortless prolongations of speech sounds or words with no observable sign of frustration or malreaction, and the secondary or overlaid myospasms accompanied by a great mass of psychic as well as physical paraphernalia in the form of unwholesome attitudes and unnecessary grimaces, tongue protrusions, body twisting and other types of well developed and habituated speech gymnastics.

This view of the psychologic, neurologic and physical picture of an experienced dysphemic is enhanced and clarified when one studies objectively the development of the sympton, stuttering. Van Riper (32) in his most recent book gives an excellent account of the growth process from the onset of dysphemia through its protracted experience in early childhood to adulthood.

I have attempted in this discussion to call attention to a number of implications as indicated in both laboratory and clinical studies on a most baffling disorder of the central nervous system. I have purposely tried to get our attention directed away from what seems to be quite clearly a peripheral symptom of a central state of greater importance, etiologically. Whatever the central nervous organization to which I have referred turns out to be like, if and when future researches discover it, I prefer at the present writing to call one common manifestation of its presence during speech, dysphemia. From the foregoing recital it seems quite clear that as yet we have not solved our problem with

dysphemia. A good deal is known about its nature, its secondary evolvements, its development and the dire consequences to one so afflicted. I have tried to present what seems to me to be significant researches on the problem, leaving a good deal of room for critical evaluations to the reader.

My general point of view is that we have in dysphemia a serious pathologic state of the organism, which as I proposed in 1933 may be discovered to be a form of atavistic behavior. In some dysphemics this atavistic, ambilateral mechanism may be present from birth, genetically determined and regardless of peripheral motor preferences. In others whose predisposition to normal cerebral dominance appears to be faulty, interference with the native sidedness pattern as indicated by peripheral handedness may result in a "throwback" state of the central nervous system. In others, ambilaterality may be produced by accidents and high febrile diseases. The inherent constitutional differences in dysphemics as compared to normal speakers appear to be differences in kind and not in degree.

The complexity of our dysphemia problem appears to be such that it demands management from many angles. Although dysphemics do indicate a high degree of dysintegration in many of the processes known to operate in talking, one must not be content to clinically service a single structure, function, or process. The dysphemic, like many other disordered persons, unquestionably should be viewed as multidimensional, possessing too a series of complicated systems of mineral salts, colloids and water, and to treat any one aspect of his behavior alone may turn out to be quite meaningless. A sane clinical program would include materials and technics covering the following areas: neurologic, physiologic, sociologic, psychologic, physical and vocational. Such a program needs the co-operation and help of many departmental units in a university or college.

BIBLIOGRAPHY

(1) **West, R., Kennedy, L.,** and **Carr, A.** *Rehabilitation of Speech.* New York: Harpers, 1937.

(2) **Fletcher, J. M.** *Problem of Stuttering.* New York: Longmans, Green and Co., 1928.

(3) **Brill, A. A,** Speech Disturbances in Nervous and Mental Diseases. *Quart. J. Speech,* 1923, April.

(4) **Travis, L. E.** A Phono-Photographic Study of the Stutterer's Voice and Speech. **Psychol. Monogr., 1926, 36.**

(5) **Travis, L. E.,** and **Fagan, L. B.** Studies in Stuttering: III. A Study of Certain Reflexes during Stuttering. *Arch. Neurol. Psychiat.,* 1928, 19, June.

(6) **Travis, L. E.,** and **Dorsey, J. M.** Effect of Alcohol on the Pattellar Tendon Reflex. *Arch. Neurol. Psychiat.,* **1929, 21.**

(7) **Travis, L. E.** *Speech Pathology.* New York: D. Appleton-Century Co., Inc., 1931.

(8) **Travis, L. E.** The Relation of Voluntary Movement to Tremors. *J. Exp. Psychol.,* 1929, 12, 6.

(9) **Jasper, H. H.** A Laboratory Study in Diagnostic Indices of Bilateral Neuromuscular Organization in Stutterers and Normal Speakers. *Psychol. Monogr.,* 1932, 43, 1.

(10) **Jasper, H. H.,** and **Murray, E.** A Study of the Eye-Movements of Stutterers during Oral Reading. *J. Exp. Psychol.*, 1932, 15, 5.

(11) **Travis, L. E.** Dysintegration of Breathing Movements during Stuttering. *Arch. Neurol. Psychiat.*, 1927, 18, Nov.

(12) **Travis, L. E.** Photographic Studies of the Voice in Stuttering. *Arch. Neurol. Psychiat.*, 1927, 18, Dec.

(13) **Blackburn, B.** Voluntary Movements of the Organs of Speech in Stutterers and Normal Speakers. *Psychol. Monogr.*, 1931, 41, 4.

(14) **Bryngelson, B.** A Study of the Articulatory Difficulties of Stutterers. Unpublished M. A. thesis, Univ. Iowa, 1926.

(15) **Bryngelson, B.** A Photophonographic Analysis of the Vocal Disturbances of Stutterers. *Psychol. Monogr.*, 1932, 43, 1.

(16) **Travis, L. E.** Dissociation of Homologous Muscle Function in Stuttering. *Arch. Neurol. Psychiat.*, 1934, 31, Jan.

(17) **Hunsley, Y. L.** Dysintegration in the Speech Musculature of Stutterers during the Production of a Non-Vocal Temporal Pattern. *Psychol. Monogr.*, 1937, 49, 217.

(18) **Gardner, W. H.** Study of the Pupillary Reflex with Special Reference in Stuttering. *Psychol. Monogr.*, 1937, 49, 217.

(19) **Travis, L. E., Malamud, W.,** and **Thayer, L. R.** The Relationship between Physical Habitus and Stuttering. *J. Abnorm. (Soc.) Psychol.*, 1934, 29, 2.

(20) **Trumper, M.** *A Hemato-Respiratory Study of* 101 *Conseculive Cases of Stammering.* Philadelphia, 1928.

(21) **Stratton, L. D.** A Factor in the Etiology of a Sub-Breathing Stammerer: Metabolism as Indicated by Urinary Creatine and Creatinine. *J. Comp. Psychol.*, 1924, 3, June.

(22) **Starr, H. E.** The Hydrogen Ion Concentration of the Mixed Saliva Considered as an Index of Fatigue and of Emotional Excitation, and Applied to a Study of the Metabolic Etiology of Stammering. *Amer. J. Psychol.*, 1922, 33, July.

(23) **Kopp, G. H.** Metabolic Studies of Stutterers. *Speech Monogr.*, 1934, 1, 1.

(24) **Seemann, M.** Prosperek R. Pathogeneses Kaktavosti. *Rev. Neurol. Psychiat.*, Praka, 1936, 33.

(25) **Glaser, E. M.** Possible Relationship between Stuttering and Endocrine Malfunctioning. *J. Speech Disorders*, 1936, 1, Sept.

(26) **Orton, S.,** and **Travis, L. E.** Studies in Stuttering: Studies of Action Currents in Stutterers. *Arch. Neurol. Psychiat.*, 1929, 21, Jan.

(27) **Van Riper, C.** A New Test of Laterality. *J. Exp. Psychol.*, 1934, 17, April.

(28) **Ojemann, R. H.** Studies in Handedness: III. Relation of Handedness to Speech. *J. Educ. Psychol.*, 1931, 22, Feb.

(29) **Bryngelson, B.** A Study of Laterality of Stutterers and Normal Speakers. *J. Soc. Psychol.*, 1940, 11.

(30) **Weisenberg, T.,** and **McBride, K. E.** *Aphasia, a Clinical and Psychological Study.* New York: The Commonwealth Fund, 1935.

(31) **Orton, S. T,** *Reading, Writing and Speech Problems in Children.* New York: W. W. Norton & Co., Inc., 1937.

(32) **McDowell, E.** *Educational and Emotional Adjustments of Stuttering Children.* New York: Columbia Univ., Teachers College Contrib. Educ., 1928, 314.

(33) **Johnson, W.** *Influence of Stuttering on the Personality.* Univ. of Iowa Studies in Child Welfare, 5, 5.

(34) **Van Riper, C.** *Speech Correction.* New York: Prentice-Hall, 1939.

(35) **Bluemel, C. S.** Primary and Secondary Stammering. *Quart. J. Speech*, 1932, 18, April.

(36) **Wallin, J. E. W.,** Studies of mental defects and handicaps, Miami University Bulletin, 1924, series xxii, No. 5.

BOOK NOTICE

OUR FIRST SPEECH BOOK. M. PEARL LLOYD, O. W. U. *Newson & Co., New York*, 1942. 163 pp. $ .75 net.

There has long been a crying need for a book of this kind. It is designed for the primary grades. Hence, it is profusely illustrated, and the illustrations pertain specifically to the speech problem involved at each step. Almost every other page contains the music for innumerable "catchy" jingles which have been drawn up with the specific purpose in mind of teaching some sound which the primary child regularly finds to be difficult. And they are fairly well distributed from a progressive difficulty standpoint. The "ng," for example, falls on page 73 in a slow moving jingle, reading:

"Ding dong, sing song,
ping pong, wing wong,
Bing bong, ting tong,
ling long, king kong."

It is followed by another on page 75:

"Hung-ăh hung-ăh hung-ăh hung
I must raise the back of my tongue
Hung-ăh hung-ăh hung-ăh ho
Tip behind the teeth lies low."

The tempo is stepped up on the latter.

This is followed by the "l," to which a great deal of attention is given, then the "s," "sh," and "ch."

One of the finest things about this little book is the regular usage of sentence accent marks in the rhymes and jingle poems. If that had been supplemented by some device to indicate pauses, probably the child could have been better trained. But the author probably has assumed that punctuation marks would serve that purpose. Certainly they lead up and serve splendidly in their final application to the choral speaking, which is made to do such splendid service.

It is unfortunate that these accent marks are scattered rather indiscriminately over consonants, including even the stops which can not be prolonged, as well as the vowels. And decidedly inadequate attention is given some very difficult sounds such as "r."

The publishers are entitled to a lot of credit for the typographical assembly, the paper, binding, and illustrations with which they have turned out the book.

G. OSCAR RUSSELL

A CONTRIBUTION TO THE GENESIS OF SPEECH MOVEMENTS AND THE ETIOLOGY OF STUTTERING

HIDE HELEN SHOHARA,
University of Michigan

In the doctoral dissertation of H. Shohara (1932), she showed that the consonants originate as specialized modifications of swallowing, sucking and chewing reflexes, just as vowels are modified phonation. She laid chief emphasis on the sucking and swallowing movements, dealing more fully with the movements of the tongue involved in these processes. The rather crude movements of the larger chewing muscles in contrast with the highly specific movements of the tongue were regarded as accessory factors. In 1940 Professor Emil Fröschels, in his treatise on voice and speech therapy, independently announced the view that the speech movements developed as modifications of the chewing movements. Schliefferdecker, P (1919) and Liepmann (1929) also had previously made similar suggestions. The present paper presupposes the above origin of the consonantal sounds.

Since the articulatory movements of speech are made almost exclusively during the expiratory process there must have been a time when the vegetative reflex of swallowing, from which the mid and back palatal consonants like [k] and [g] were developed, was synchronized with the expiratory reflex. This could not happen if the sucking infant employed the adult pattern of swallowing. That conditions necessary to establish a simultaneity of swallowing movements of the tongue and expiration have existed can be deduced from the work of Albrecht Peiper (1939) and of Peiper and Hofmann (1935), who by a series of pneumograph records (1939) and X-ray kymograph films (1935) have demonstrated that in normal healthy sucklings the liquid food passes over the epiglottis either at the end of expiration before inspiration begins or at the end of inspiration before expiration begins, and that only one-sixth second is required for that passage. Thus breathing is not interrupted by swallowing, and the tongue and jaw movements of swallowing may occur during the act of expiration with the result that there is opportunity for the establishment and automatization of a complex reflex involving both these elements.

The problem is not, however, so simple as this, because it has long been recognized, although not generally noticed, that at birth the pharynx and the soft palate are disproportionately short, and the larynx is situated so high that in the normal position of rest its upper edge lies in contact with the soft palate and that the pillars of the fauces lie against the upper rim of the larynx above the piriform recesses on both sides. This arrangement in connection with the tongue entirely closes off the mouth cavity from the pharynx. Furthermore, at birth the angle between the axis of the mouth and that of the pharynx is obtuse, being about 30° to 35° larger than in the adult, in whom it is approximately a right angle. During childhood and youth this

anatomical arrangement is gradually transformed into the adult form, the process beginning soon after birth.

On the basis of this anatomical arrangement it has been believed and still is believed by some that the very young infant swallows in an entirely different manner from the adult, the liquid food passing over the side of the tongue through the piriform recesses around the larynx below its rim and thence into the hypopharynx and esophagus. If an infant during its first three months does swallow in this way, it is evident that its tongue would not make the vegetative movements essential to the development of the back palatal and velar contacts [g] and [k]. On the other hand, this type of swallowing *would* explain why these sounds appear later in the child's speech than the labials [m], [b] and [p], since the essential lip movements are produced from the very first day after birth. This early anatomical structure also explains the prominence of the nasal twang in babies, it being caused by the narrowing down of the vocal passage due to the high position of the larynx and the large oropharyngeal angle. It is of course possible

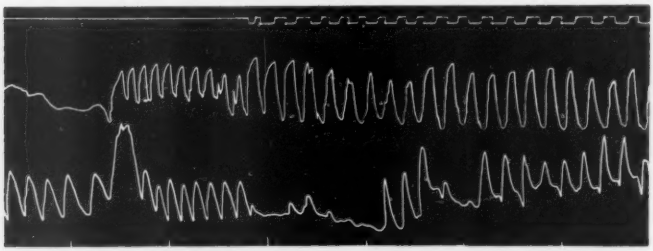


Fig. 1. Kymograph record. Top line: swallowing, indicated by pressing a key. Second line: sucking. Bottom line: breathing. Time marked every 5 sec. by vertical strokes at lower edge. To be read from left to right.—After Peiper.

that both methods of swallowing occur, and it is certain that the child must begin to swallow in the adult manner when it begins to take semi-solid food at the age of three or four months. The final solution of this problem must await more extensive X-ray kymograph studies of swallowing in infants under four months of age.

Incidentally, it should be said, that the front palatal and alveolar articulations appear still later, after extensive practice in the insalivation and mixing of semi-solid food.

From Peiper's studies of the relationships existing between sucking, swallowing and breathing in young infants, we may also make some deductions concerning the etiology of stuttering. Peiper has shown (1931) that in the very young suckling, breathing, sucking and bucco-pharyngeal swallowing proceed in the same regular rhythm: to every breath correspond either one or two complete sucking movements and one (perhaps frequently even two) acts of bucco-pharyngeal swallowing. In 1938a he also adduced evidence to show that in normal healthy children born at term the swallowing center, being phylogenetically older, compels the breathing center to follow its rhythm.

The above relationships between sucking, swallowing and breathing are regulated by three groups of nerve connections in the medulla of which the so-called respiratory center is best known although the regulators of swallowing process are even older. In the case of sick children the energy reserve of these nerve connections is quickly exhausted. When subjected to particularly strong stimulus the swallowing center uses all the nervous energy available and leaves no energy for the breathing center. Breathing is thus inhibited, and a period of apnea ensues.

This stoppage of breathing during swallowing movements of the tongue bears the characteristics of one type of stuttering, since in both cases the movements of lips, jaw, tongue tip and tongue blade (which produce the labial, dental and alveolar and prepalatal speech articulations) inhibit expiration which is essential to phonation and also to consonantal sounds.

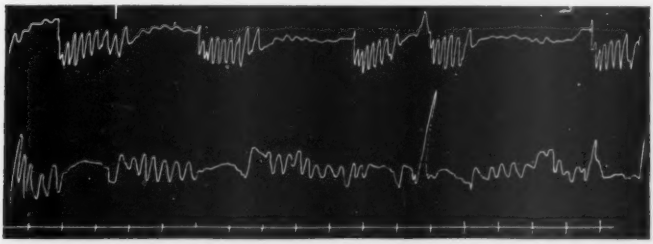


Fig. 2. Kymograph record. Upper curve: sucking. Lower curve: breathing. Time marked below by vertical stroke every 5 sec. The waves of small amplitude on the upper curve between the periods of sucking are not sucking movements, but are due to the effect of the breathing movements on the rubber balloon which recorded the sucking.—After Peiper.

Exactly parallel conditions prevail in prematurely born infants, since they also have very small reserves of nervous energy. It has been observed that in premature children an especially frequent cause of apnea is the giving of food. "The prematurely born may have a severe attack of apnea in connection with their first attempt to drink, although their respiration had been good up to that movement." Professor Ylppö suggests in this connection that in swallowing a cessation and a reflex disturbance of breathing may involuntarily take place. In other words, the infant stutters a year or more before it begins to talk.

These data confirm Peiper's explanations above cited. It is clear that many premature and feeble newborns lack an opportunity to establish the normal habit of synchronous breathing, sucking and swallowing. It is significant that most of Peiper's (1939a) sick subjects were afflicted with inflammation of the lungs and only a few with digestive troubles. Not only are respiratory diseases frequently followed by stuttering, as has been pointed out in detail by Mildred Berry (1938), but they are also frequently associated with rickets. Since stuttering is a frequent sequella of respiratory diseases and of

ricketts, a connection between Peiper's findings and stuttering are immediately suggested. Although the conspicuous symptoms of rickets do not appear at all before the child is six months old, and rarely before it is a year old, it must not be overlooked that rickets do occur as a result of deficient vitamin D and other conditions in the mother both during pregnancy and during the first year of the child's life. Rickets may therefore be present in the child even in the prenatal period, as has been demonstrated recently by Hashimoto (1939) and Takahara (1940).

Since Peiper's paper deals only with infants, there is no way at present of knowing what percentage of his subjects will later show speech defects. However, the statistics of Brauder (1940) show that of 375 prematurely born children, 89.6% showed traces of having had rachitis in an early period. Of these, 26.4% had some form of speech defects.

The data set forth in this paper point to the conclusion that stuttering may result from congenital weakness of the neuro-muscular system, resulting from premature birth or from disease of the newly-born infant. A large percentage of premature children die shortly after birth. In those who survive the attacks of apnea cease or become sporadic, and the swallowing, sucking and breathing reflexes may proceed to all appearances in a normal fashion. Many children, however, fail to make up the loss of vital energy incurred, and they are thus exposed to the recurrence of energy depleting diseases. Even though there is no such recurrence of disease, and even though the child may be able to perform adequately the simple vegetative functions of swallowing, sucking and breathing, the highly complex and rapidly shifting conditioned reflexes of articulate speech make so heavy a demand upon the child's store of energy, that not enough remains to admit the functioning of the breathing center. In this case breathing would be inhibited, just as in Peiper's experiments breathing is inhibited by swallowing and sucking. These conclusions are consistent with the observations of Mildred Berry concerning the relationship between infectious diseases and stuttering. This paper gives a more detailed account of the nervous conditions presumed to be involved.

BIBLIOGRAPHY

Berry, Mildred (1938). A Study of the Medical History of Stuttering Children. Speech Monographs, 5.

Fröschels, Emil (1940). Practice of Voice and Speech Therapy.

Hashimoto, K. (1939). Okayama Med. Jl. 51: 2370–2371.

Hofmann, Erich und Albrecht Peiper (1935). Röntgenkymographie des Saugvorganges. Klinische Wochenschr. 14: 1723–1725.

Peiper, A. (1931). Die Nahrungsaufnahme des Säuglings. Monatschr. f. Kinderheilk, 50: 21–28.

(1938). Pendelinduktion zwischen Atemzentrum und Saugzentrum. Monatschr. f. Kinderheilk, 75: 78–84.

(1938a). Das Zusammenspiel des Saugzentrums mit dem Atemzentrum beim Säugling. Pflügers Archiv. f. die gesamte Physiologie, 240: 312–324.

(1939). Die Führung des Saugzentrum durch das Schluckzentrum. Pflügers Archiv. f. die gesamte Physiologie, 242: 751–755.

(1939a). Die Saugstörung. Montaschr. f. Kinderheilk, 79: 241–255.

Shohara, H. H. (1932). A Contribution to the Genesis of the Articulatory Movements of Speech. Resumé published in the Quart. Jl. of Speech, June, 1935, Vol. XXI, No. 3.

Takahara et al. (1940). Okayama Med. Jl. 52: 2753.

AUDITORY MEMORY SPAN FOR SPEECH SOUNDS OF SPEECH DEFECTIVE CHILDREN COMPARED WITH NORMAL CHILDREN

RUTH WATT MÉTRAUX

Auditory memory has been a frequent subject of investigation because of the relationship assumed to exist between it and the acquisition of speech. The span of auditory memory has not yet been satisfactorily determined, however, in many instances. Believing in the importance of this particular faculty, and realizing that too little research has been done in this field, especially in regard to the speech defective, we began, last year, at the University of Michigan Speech Clinic, a study of the auditory memory span of the speech defective child as compared to that of the normal speaking child.

We used a modification of a test devised by Vergil A. Anderson at the University of Wisconsin, now at Stanford University, using speech sounds—vowels, diphthongs and consonants. We used such a test rather than the standardized digit test used by Stanford-Binet, for instance, because the speech sounds have a predominantly auditory value for the subject, they are difficult to visualize, the presentation is purely auditory, the reproduction is vocal and immediate, and the sounds have little associational implication.

In our modification of Anderson's test for use with children, the vowel and diphthong test consists of three groups of sounds in series from 1 to 7, and the consonant test is constructed in the same manner. It is so devised that the sounds are evenly distributed throughout the whole test, and in various positions. None of the units form meaningful associations, and care is taken not to repeat units or combinations of sounds in adjacent series. A period of silence is observed between each sound. The intensity is kept constant insofar as possible.

In order to standardize the conditions more adequately, the test was administered by records. This differs from Anderson's procedure in that the examiner himself pronounced the sounds for the subject each time.

Practice trials were given, and the child was allowed to practice as much as necessary in order to be sure that he could produce the sounds on the test. The child was seated with his back to the examiner, so that the mechanics of administering the test presented no distraction to him. After each series, the child was given as long as he required to reproduce the sounds. The examiner made a phonetic transcription of the response on blanks properly devised for this test. In the case of the speech defective, the examiner noted carefully his closest approximation to the sound during the practice trials, and if the

response was consistent, he was given credit for the correct response on the test.

Subjects for this study were chosen from the speech classes conducted in the Ann Arbor schools, the normal speaking children being matched in the same schools. Thirty-four of the speech class group who had been given the Kuhlmann-Anderson Intelligence test and 34 normal speaking children, matched with the speech group as nearly as possible according to age, grade, sex and Kuhlmann-Anderson intelligence rating were used in this study. Results for 66 additional speech cases taken from the Ann Arbor schools, the University of Michigan Speech Clinic, and from a speech survey made at Petoskey, Michigan, were also obtained.

For scoring, we used the method which Anderson used, and which is described by Peatman and Locke in the Archives of Psychology for May, 1934. Three scores were given, basal, weighted and raw. To obtain a basal score, we took that series which the child correctly reproduced immediately before his first failure in all three groups. To obtain the weighted score, one-third of a point was added over and above the basal score for every series correctly reproduced, regardless of intervening failures. This score is the more accurate one, since it shows the child's average performance. The raw score is the longest series reproduced in any group regardless of intervening failures.

Our matched group ranged in age from 6 to 10 years, in grades from I to V, and in I. Q. from 70 to 130. There were 25 boys and 9 girls in each of the matched groups. In the 66 unmatched speech cases, the range in age was 4 to 14 years, grades I to VII, including a special room group; there were 38 boys and 28 girls in the unmatched group.

The mean basal vowel score for the group of 34 speech defectives was 2.15, while for the normal speaking group, the mean was 1.82; weighted score for vowels in the speech defective group was 3.14, compared with 3.06 of the normals; the raw vowel score was 4.15 for the defectives and 4 for the normals.

The mean basal consonant score for the speech defectives was .24; for the normals, 1.21; weighted consonant score was 1.41 for the speech defectives, 2.16 for the normals; raw consonant score for the speech defective was 2.44 compared with 2.88 for the normal.

Statistically treated, these scores show that the speech defective group is inferior to the normal group in performance on the consonant test, but there is no evidence of an actual difference between the performance of the speech defective and the normal on the vowel test.

The 66 unmatched speech defective cases showed scores on both vowels and consonants, slightly lower than those of 34 normal speaking children or the 34 speech defectives of the control groups. A remedial reading group of 26 children recently tested show scores slightly higher on the vowel test than either of the matched groups.

The boys in the speech defective and normal speaking matched groups and also in the group of 66 unmatched speech defectives cases had both a mean vowel and consonant score higher than that of the girls in these groups.

Comparison of auditory memory span scores and I. Q. rating show little, if any, increase in score as I. Q. increases, and the same may be said of auditory memory span and age. For instance the highest weighted vowel score occurs in the speech defective group with I. Q. ranging from 80 to 90, while the highest weighted consonant score occurs in the normal speaking group, with I. Q. ranging from 90 to 100. In correlating auditory memory span and age, we find the highest weighted score on the vowel test in the speech defective group, age 9, while the mean score for consonants is found to be highest at age 8 in the normal speaking group.

In comparing scores of the negro children with those of the white children, we found that the speech defective colored children made a higher score in every instance than the white children in the speech defective group, and the same was true of the normal speaking children, except for the weighted vowel score. Here we found that the white children exceeded the colored by .36. Among the 66 unmatched speech defective cases, we found the colored children superior in the weighted and raw score for vowels, but the white children were superior in both scores on the consonant test.

We compared the scores of the articulation, stuttering and dysphonia defectives in the group of 66, and found that the articulation group, consisting of 48, had the highest weighted and raw scores on the vowel test, while the stutterers excelled on the consonant test. The dysphonia group also exceeded the articulation cases in the consonant test. The great variance in number in these groups, is a factor that must be considered, in any interpretation of the results, however.

The consonant scores, as you have observed, are lower than the vowel scores throughout. Hearing, on a sampling of each of the groups, was tested on a 6B Western Electric audiometer, in order to determine whether hearing acuity influenced the results. The loss did not seem significant enough to affect the test results, in any of the subjects tested.

Many more cases of both speech defectives and normals must be tested, of course, before any conclusions can be drawn. However, we may summarize the results obtained in the group we have studied:

1. The vowel sounds test seems a valid one for testing the auditory memory span of both the normal and the speech defective child because:
   a. The vowels can be produced by both the normal and the speech defective child with little difficulty.
   b. The phonetic power of the vowel sounds makes them more satisfactory for testing purposes.
   c. There is little associational value for any of the sounds. Hence, we may presume we are more nearly testing the auditory memory span of the child, uninfluenced by other factors.
2. The consonant test, as it is now constructed, is not a satisfactory one for testing the auditory memory span of children because:
   a. The consonants are difficult for the child to produce, especially for the speech defective child.

b. The stimulus is so weak that there is much confusion in the perception and reproduction of the sounds.
c. The mechanics of recording the unvoiced consonant sounds present more difficulty than most other sounds.
d. These factors, and possibly others, over which we have no adequate control, are operating in the consonant test, and they penalize the speech defective more than the normal speaking child.

3. The average weighted score for vowels for the normal speaking group used in this study was found to be 3.06, and for the speech defective group, 3.14.

   The average weighted consonant score for the normals was 2.16 and for the speech defectives, 1.41.

   The auditory memory span of the speech defective child, then, appears to be slightly higher for vowels, and lower for consonants, than that of the normal speaking child, in the group used in this study.

4. Auditory memory span for vowels appears to be slightly higher for the child with the articulation defect than for the child with dysphonia or stuttering.

5. Auditory memory span showed no increase with any degree of conformity, with increase in age or in I. Q. rating.

6. The auditory memory span of the boys, in both the normal speaking and the speech defective groups, is slightly higher than that of girls.

7. Auditory acuity seemed to have no significant relationship to the scores made on the test.

There can, of course, be no final interpretation made on these results because of the small number of cases used in the study, and because of the great variance in number in many of the correlation groupings. The results at present are designed only to show the trends up to this point in the experiment, and to indicate the usefulness of the tests.

In continuation of these tests for purposes of standardization and setting up norms on them, we are making use of the results already obtained, however, and of the observations of difficulty encountered. The vowel test will probably continue as it stands, with the possible substitution of the sound most often confused with one which will not offer so much difficulty, and with some cutting of directions in order to reduce fatigue and taxation of the attention span. The consonant test will be revised with the retention of the same consonant sounds, but with the addition of the neutral vowel, ʌ, to facilitate recording and perception. Also, the consonant test will be given first with alternate children, so that fatigue and attention will not penalize the child's score on the consonant test.

We trust that this bit of research and its continuation will prove an additional aid in diagnosing, understanding and retraining the speech defective child.

THE EFFECT OF MATURATION UPON DEFECTIVE ARTICULATION IN ELEMENTARY GRADES[1]

VIVIAN ROE AND DR. ROBERT MILISEN

INTRODUCTION

The literature in speech correction, with a wide variation in the definition and apparent understanding of terms, has discussed a great deal of therapy and given innumerable opinions regarding the articulatory defective. In spite of these statements, very little has been known about the occurrence of the specific articulatory defect as related to the school age of the child. It is therefore the purpose of this study to give detailed information regarding the speech condition of a large unselected sample of children ranging from grade one through grade six, in the hope that this information will enable us to improve our understanding and treatment of articulatory disorders and lead us into more effective oral reading procedures for the primary grades.

HISTORY OF SPEECH SURVEYS

A great deal of quibbling has gone on as to what constitutes a speech defect. Many attempts have been made to classify children as to whether or not they are speech defectives. It will not be the purpose of this study to add to the confusion, but rather to describe the defective speech condition as observed.

There are three types of survey testing. The first is the questionnaire method. It is the weakest type from the standpoint of accuracy of information, regarding both the nature of disorder, and the number of cases demonstrating it. At best it is only a crude measure of the speech difficulties of a group. In 1916 Wallin (1) reported the results of such a survey of 87,057 children from the public schools of St. Louis. The children ranged in age from five to twenty-one. Two and eight-tenths per cent were found to have speech defects and the ratio between boys and girls was two to one. In 1926 Root (2) reported results taken from a questionnaire sent out to discover whether speech difficulties presented a problem in the public schools of South Dakota. Judgment as to who were speech defectives was made from definitions of different disorders on the questionnaire. The incidence of speech defectives was six and three-tenths per cent and the ratio of boys to girls was one and five-tenths to one.

The second type of survey gives information concerning generalized defects, but is of very little value in helping the child, because the actual understanding of the disorder is dependent upon the definitions of terms, which of necessity are so vague that they have been of little value. This type of survey is instead of greater value in convincing

[1]This paper is a resumé of a study submitted as a Master's Thesis in the Department of Speech at the Indiana University in October, 1940.

school officials of the importance of a speech correction program. In the White House Conference of 1931 (3), a report was made involving results from both questionnaire and individual testing methods. The survey, under the supervision of West, Travis and Camp, emphasized lack of consistency in the judgment of who were speech defectives and who were not. This survey was made, for the most part, in 48 cities having had a program of speech correction. The second part of the survey was conducted in Madison, Wisconsin. Seven per cent of the 10,000 children examined were classified as defective.

In 1916 Blanton, Ballard, and Blanton (4) made a survey of 4,862 school children in grades one through eight in the public and parochial schools of Madison, Wisconsin. They reported five and sixty-nine hundredths per cent of the children as "suffering from speech defects." They reported a gradual decrease in the number of defects as the grade level increased. Blanton (4) also reports a survey by Camp of Grand Rapids in which 15 per cent of the children tested showed speech defects.

Morris (5) has reported the results of two surveys. The first was one in which 14 per cent of 178 sophomores tested from Kansas City high schools were found to have defects in voice and speech or both. In the second Morris (5) made a preliminary report of a survey of 208 students from grades 3A to 7A in the Laboratory School at the Indiana State Teachers College at Terre Haute, Indiana. He reports 45 per cent of these children to have defects in voice or speech, or both, with a larger number of boys than girls having articulatory defects.

In the third type of survey a greater attempt is made to discover the relation of speech development, or lack of development, to age, and to make an analysis of the speech sounds as found in the different groups. Morrison (6) examined 218 children in four kindergarten and first primary classes. A picture test was used. She found 107 of the 218 to have errors on the *th;* 12.8 per cent of the rest of the group showed other marked defects in articulation. Incorrect sounds ranged from one to ten.

In 1931 Wellman, Case, Wengert and Bradbury (7), in an investigation of 204 pre-school children, found a rapid improvement with an increase in age in the ability of children to produce English sounds. The test consisted of 133 speech sounds, including vowels, consonant elements, consonants, and diphthongs. Results were obtained from correct sounds made in words, phrases, or propositional speech, which were elicited in response to questions and conversation about pictures. This procedure would be less reliable than one in which the examiner is listening for only one sound in one position, in one discreet word such as was attempted in the present study.

SUBJECTS

The subjects for this study were 1989 children in grades one through six from the public schools of nine Indiana cities. Seventy per cent of the children tested were from one large city system. None of the children tested had received definite speech training.

These children were an unselected sample of the school population in that all children in a grade were tested; no attempt was made to select grades for testing in which a prevalence of speech disorders had been noticed; the children tested represented all types of social and economic environment.

MATERIALS AND PROCEDURE

A modification of the Detroit Articulation picture test was used in testing consonants and consonant blends in 66 sound positions.

The child was shown the three pictures on each page representing initial, medial and final sound positions and asked to name what he saw. Although in five instances questions were needed to obtain a response, at no time was any oral stimulation given nor was any question asked making possible the imitation of the correct sound; nor was any attention called to the fact that a speech test was being given so that undue effort would be used for pronunciation. As the child responded the examiner always made some symbol on the data sheet, thus the child had no feeling of success or failure to affect his performance.

It was possible to make these recordings rapidly because each time the examiner was listening for only one sound in one position in one discreet word and no attempt was made to test anything but articulation.

Every sound error was noted regardless of how unimportant it may have been.

The types of errors noted were omissions, substitutions and indistinct sounds.

A study was made of each sound and the percentages were computed for the numbers and types of errors in all positions for grades one through six and a comparison was made with the results of other surveys.

RESULTS

TABLE I

THE DISTRIBUTION OF THE NUMBER OF CHILDREN TESTED ACCORDING TO GRADE AND SEX

	Class A		Class B		Total	Total	
Grade	Boys	Girls	Boys	Girls	Boys	Girls	Total
I	108	76	164	144	272	220	492
II	82	74	55	69	137	143	280
III	112	109	101	82	213	191	404
IV	52	34	45	44	97	78	175
V	69	72	130	128	199	200	399
VI	51	61	71	56	122	117	239
Totals	474	426	566	523	1040	949	1989

The number of errors for the two children at each extreme for each grade was as follows:

First grade. ..... 2—53
Second grade. ..... 1—32
Third grade. ..... 0—50
Fourth grade. ..... 0—27
Fifth grade ..... 0—27
Sixth grade ..... 1—25

In Table II it should be noted that the percentage of children in the B grade sections is approximately equal to the A grade sections.

TABLE II

MEAN AND STANDARD DEVIATION OF ERRORS BY GRADES AND CLASS, IRRESPECTIVE OF SEX

Grade	Number of Children	Class	Mean	S. D.
I	308	B	13.61	9.08
	184	A	12.78	7.32
II	124	B	10.20	5.99
	156	A	10.11	5.41
III	183	B	9.37	6.99
	221	A	8.69	4.69
IV	89	B	7.01	4.14
	86	A	8.26	4.26
V	141	B	7.50	4.28
	258	A	7.67	3.90
VI	127	B	8.05	4.14
	112	A	7.96	4.45
	1989 Total number tested.			

According to Table III no significant difference was found between the mean number of errors for boys and for girls. This should be compared to the Report by Root (2) in which the ratio for boys and girls was 1.5 to 1.

Wellman, Case, Mengert and Bradbury (7) reported that girls tended to be superior to boys on consonant elements in some age groups.

TABLE III

MEAN AND STANDARD DEVIATION OF ERRORS ACCORDING TO GRADE AND SEX

		Boys			Girls		
Grade	Class	Number	Mean	S. D.	Number	Mean	S. D.
I	B	164	14.39	9.14	144	12.72	8.43
	A	108	12.48	7.56	76	13.21	6.73
II	B	55	10.12	5.91	69	10.11	6.02
	A	82	10.58	6.34	74	9.59	4.09
III	B	101	10.06	8.06	82	8.52	5.28
	A	112	8.40	4.70	109	9.00	4.65
IV	B	45	6.08	3.16	44	7.95	4.77
	A	52	8.26	4.52	34	8.26	3.81
V	B	69	7.84	4.90	72	7.18	3.53
	A	130	7.65	4.17	128	7.70	3.60
VI	B	71	8.36	4.24	56	7.66	3.98
	A	51	8.27	4.83	61	7.70	4.11

In Table III a definite decrease is found in the mean number of errors from the first through the fifth grade with a slight rise in the sixth grade. This increase was undoubtedly due to the accident of sampling.

Morris in his first survey reported no significant difference, but in the second reports a larger number of boys than girls with articulatory defects.

The critical ratio in Table IV indicates that the differences between the numbers of errors in grades I and II, II and III, and III and IV are significant. This table indicates, however, that the decrease in number of sound errors, as a result of maturation is less in higher grades than in grades one, two and three.

TABLE IV

THE NUMBER OF ERRORS FOR THE AVERAGE CHILD IN EACH GRADE WITH THE DIFFERENCE IN THE NUMBER OF ERRORS BETWEEN GRADES AND THE CRITICAL RATIO

Grade	Mean Number of Errors	Difference	Critical Ratio
I	13.30		
		3.31	6.89
II	9.99		
		1.14	2.71
III	8.85		
		1.23	2.91
IV	7.62		
		.01	.02
V	7.61		
		— .40	—1.21
VI	8.01		

Table V indicates that on the majority of sounds, the percentage of children making errors decreased from the first to the sixth grades. It should be noted that a large proportion of children in all grades made errors on z, dʒ, g, v, ʍ, ð and b.

Table V demonstrates that the effect of growth and maturation on number of errors varies from one sound to another. For instance, about the same number of children made errors on the ʍ in the fifth and sixth grades as in the first grade. While in contrast there is a wide variation between the number of children making errors in the first grade and those making errors in the sixth grade.

As seen in the preceding tables, with the exception of ð and ʍ with *w* substitution, the majority of errors on these sounds are the substitution of their voiceless counterparts. As Wellman, Case, Mengert and Bradbury (8) report, the largest number of errors are found on fricative sounds.

TABLE V

PERCENTAGE OF CHILDREN MAKING SOME ERROR ON SOUNDS, IRRESPECTIVE OF TYPE OR THE POSITION IN A WORD

Sound	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI
z	88.1	89.9	82.6	67.9	72.17	84.5
ʍ	43.2	51.4	40.5	42.2	41.0	44.7
θ	68.8	59.6	46.5	39.9	36.0	45.1
dʒ	91.2	90.3	75.7	66.2	75.4	70.7
d	70.1	62.4	65.5	55.9	71.4	68.8
s	48.9	34.9	24.7	17.9	20.0	32.8
g	69.1	53.9	47.2	34.2	34.8	39.7
ð	57.3	39.6	36.1	28.5	36.0	41.4
v	53.0	40.3	36.1	29.7	34.8	38.4
t	45.7	30.3	38.8	34.8	45.8	55.6
b	26.0	20.3	19.3	7.9	17.0	29.2
tʃ	23.9	12.8	10.8	10.2	9.0	14.6
r	17.6	11.7	4.7	2.8	5.2	3.3
k	13.0	10.3	16.0	13.1	12.0	17.9
ʃ	14.4	6.0	4.4	2.8	2.2	5.4
f	10.9	4.6	4.7	3.9	7.5	11.2
p	5.0	1.0	6.9	.5	6.0	13.8
l	6.2	3.9	1.4	1.1	.2	7.9
ŋ	4.0	2.8	1.9	0.0	0.0	1.2
w	2.8	.7	.7	1.1	.5	.8
st	68.4	69.6	56.4	38.8	42.6	48.5
str	21.5	8.9	7.9	3.4	3.0	3.3
sk	22.5	12.1	6.1	2.8	4.0	4.1
dr	10.9	3.2	3.4	1.7	.05	1.2
fl	9.9	4.2	3.4	.5	.07	2.5

An interesting inconsistency is shown in that the proportion of children making errors on the blends *sk, str, dr* is less than the proportion of children making errors on the single sound elements contained in them. This may indicate that contrary to common belief, some sounds are more easily made in blends than when preceded or followed by vowels.

Table VI indicates, in the order of frequency, the percentage of all errors on sounds. This ranking will be of value to the teacher of speech improvement.

Speech improvement is that type of speech therapy which is given to all children in a grade. The fact is recognized in this therapy that mild errors may not affect the speech seriously, but yet those same errors may be just the difference between good and poor speech. Speech improvement is taught as a regular school project, and is as much as possible integrated with reading, language and spelling into the regular curriculum of a school system.

The ranking of sound difficulty, in Table VII, which excludes the greatest percentage of mild errors, will be of value to the teacher of speech correction.

Speech correction refers to that type of program which deals with the children severely handicapped in speech, and is usually conducted more or less in the form of individual conferences. When the children do work in groups, the groups are small and homogeneous.

TABLE VI

THE DIFFICULTY OF SOUNDS ACCORDING TO THE PERCENTAGE OF ERRORS MADE

Sound	Percentage
z	45.8
ʍ	40.0
θ	30.3
dʒ	30.2
d	25.0
s	19.9
g	18.5
ð	16.5
v	16.0
t	14.0
b	6.7
tʃ	6.4
r	5.9
k	4.7
ʃ	3.8
f	2.9
p	2.3
l	1.6
ŋ	1.1
w	.5
st	23.6
str	8.2
sk	7.2
dr	3.9
fl	2.9

TABLE VII

THE DIFFICULTY OF SOUNDS ACCORDING TO THE PERCENTAGE OF ERRORS AFTER ELIMINATING VOICELESS FOR VOICED SOUND ERRORS, *w* FOR ʍ

Sound	Percentage
θ	30.3
st	23.6
s	19.9
t	14.0
ð	13.2
z	12.4
str	8.2
sk	7.2
dʒ	7.2
tʃ	6.4
r	5.9
v	5.6
k	4.7
d	4.0
dr	3.9
ʃ	3.8
g	3.7
fl	2.9
f	2.9
p	2.3
l	1.6
b	1.4
ŋ	1.1
ʍ	.5
w	.5

SUMMARY

In this study 1989 unselected children in grades one through six were given a picture test so that the results of all grades were comparable. Every sound error was noted, regardless of how unimportant it may have been. No attempt was made to test for anything other than the articulation of sounds. No attempt was made to classify any child as a speech defective.

CONCLUSIONS

1. The mean number of errors decreased as the grade level increased, with the exception of the sixth grade where there was a slight increase, probably due to the accident of sampling. There was a statistically significant difference between the mean number of errors in grades 1 and 2, 2 and 3, 3 and 4, indicating that growth and maturation eliminate many sound errors in these grades. The lack of a significant difference in the mean number of errors between grades 4 and 5, 5 and 6, would indicate that maturation does not effect any noticeable improvement in the speech sounds of higher grades. This is also evident in the fact that many errors still exist in the fifth and sixth grades.

2. The percentage of children making various kinds and degrees of errors decreased from the first to the sixth grade on 80 per cent of the sounds tested. Some type of error was made on practically every sound through all the grades.

3. The type of error most frequently observed was that of sound substitution. The frequency of these substitutions decreased in number as the grade level increased. Few omissions were made in comparison to other types of errors. There was a tendency for indistinct sounds to increase with the grade level. This probably indicates that with the elimination of substitution and omission errors, an attempt was made by children to say the sound in its correct form, rather than substituting another for it; and until the pattern is learned, the sound resulting is indistinct. This may be a clue to the development of correct sounds from incorrect ones when no specific training is given.

4. The single consonant sounds arranged in order of difficulty, according to the actual number of errors on each sound regardless of grade, type of error or position in a word, are as follows: z, ʍ, θ, dʒ, d, s, g, ð, v, t, b, t, r, k, ʃ, f, p, l, ŋ, w. The consonant blends, ranked in the order of difficulty are: st, str, sk, dr, and fl.

5. The large number of errors occurring on z, d, dʒ, ð, v, b, d, were their voiceless counterparts, s, t, tʃ, θ, f, p, and t, and the majority of errors on w were ʍ. Because these sound errors are mild, the following ranking of difficulty was made excluding them: θ, st, s, t, ð, z, str, sk, d, t, r, v, k, d, dr, ʃ, g, fl, f, p, l, b, ŋ, ʍ, w.

6. The grouping of sounds according to difficulty should aid in determining the sounds to be used in words in the beginning reading vocabulary of a child. First the vocabulary should include words containing the sounds in the position presenting the least difficulty; then to proceed with language and speech integration, until words containing sounds known to give difficulty in first grade have been learned.

7. This study may serve as a standard of maturation for speech sounds according to grade levels. It, therefore, offers an opportunity to compare the articulation of a child in question to a large sample of children in his own grade. This will aid us in determining the level of his speech sound achievement, and thus demonstrate the amount of retardation he shows, and to a lesser degree, the amount of improvement we should expect from him if no speech training is given.

8. The large number of indistinct sounds in all grades and the existence of many mild substitutions of unvoiced for voiced sounds in all grades would indicate that while maturation eliminates a few of these errors, the majority of fifth and sixth grade children demonstrate these sound difficulties. Therefore, sound discrimination and speech improvement are needed in all grades as a means of improving the speech of the majority of children.

RECOMMENDATIONS FOR FURTHER STUDY

1. Further study is needed using a larger sample of children, particularly in grades two, four and six. The study should be continued into seventh, eighth and ninth grades to find out whether the difference in the mean number of errors between these grades would remain as small as between fourth, fifth and sixth grades, indicating that maturation plays a minor part in the elimination of sound errors on the upper grade levels.

2. Further testing should be done using other pictures illustrating words containing the following sounds: medial *d* (ladder), initial *v* (valentine), medial *st* (wrist-watch) and medial *θ* (birthday cake). The responses of both tests should be compared to find out whether the number of errors made in the survey were because of the particular word chosen or because of actual deficiency.

3. More testing should be done using more blends in different positions to determine whether the proportion of children making errors on the single consonant contained in the blends is greater. than the proportion of those making errors on the blends. Contrary to common belief, this study indicated a decrease in the percentage of children making errors on blends as compared to the percentage of children making errors on the same single consonant sounds contained in four out of the five blends tested.

4. Another study such as this in which sounds were put into words in sentences would be a further check on the relation of the difficulty of sounds to the age of a child, and would more nearly approach a situation of propositional speech.

REFERENCES

(1) **Wallin, J. E.** "Census of Speech Defects Among 89,057 Public School Pupils in St. Louis," *School and Society*, 3, Feb., 1916, pp. 213–16.
(2) **Root, A. R.** "Survey of Speech Defectives in Public Elementary Schools of South Dakota," *Ele. School Journal*, 26, March, 1926, pp. 531–41.
(3) *White House Conference on Child Health and Protection*, Section III-F, Committee on Special Classes, 1931, "Special Education of the Handicapped and Gifted," pp. 349–378.
(4) **Blanton and Blanton.** "Speech Defects in School Children," *National Conference of Social Work*, Milwaukee, 1921, pp. 401–5.
(5) **Morris, D. W.** "A Survey of Speech Defects in Central High School, Kansas," *Quart. Jour. of Speech Education*, 25, 1939, pp. 262–69.
(6) **Morris, D. W.** "The Speech Survey," *Jour. of Speech Disorders*, Sept., 1939, pp. 195–98.
(7) **Morrison, Carolyn.** "Speech Defects in Young Children," *Psych. Clinic*, 8, 1914–15, pp. 138–42.
(8) **Wellman, Case, Mengert and Bradbury.** "Speech Sounds of Young Children," *Univ. of Iowa Studies*, Vol. 5.

ADDENDA

Types of Errors on Sounds Tested[1]

THE *z* SOUND

The largest percentage of errors on the *z* sound were substitutions in the final position. The largest percentage of omissions and indistinct sounds were in the final position. The omissions practically disappear in the fifth and sixth grades, while the indistinct sounds have a tendency to increase with the increase in grade level.

The largest number of substitutions made for the *z* sound was *s*, which is a mild error. Probably the reason for this error is that a child stops substituting one sound for the *z*, and when the *z* is used it is poor or indistinct. Other substitutions for the *z* are listed in the order of frequency, the last three occurring only once: θ, dʒ, ʃ, t, tʃ, ʒ, v, w, j, b, f and r. Morris (5) reports *z* to be one of the most common defective speech sounds.

THE ʍ SOUND

The largest number of errors, in both initial and medial positions, were sound substitutions. These errors were found in all grades and little difference is found in the percentage of errors from one grade to another. The substitutions for ʍ are w (the majority), fw, p, and f.

THE θ SOUND

The largest number of errors on the sound were medial sound substitutions, and while the number of errors decreased with the increase in grade level, as did the omissions, a significant number still exist in the fifth and sixth grades. However, there is a tendency toward the increase of indistinct sounds through the grades. The substitutions for θ are listed in the order of frequency: t, f, s, p, d, st, b, m. The last two each occurred once.

Discounting the voiceless *s* substitution for the voiced *z* sound and the substitution of *w* for ʍ, this θ sound has the highest number of errors of any sound tested.

Morrison (6) found errors on θ to be the most prevalent in her study of kindergarten and primary children.

THE *dʒ* SOUND

The largest number of errors found on the *dʒ* sound were substitutions in the final position. The percentage of substitutions decreased from the first to the sixth grade. Few omissions are noted in any grade, but indistinct sounds are evident in all grades. The following substitutions for the *dʒ* sound are ranked in the order of frequency: tʃ (a mild error), ʃ, s, d, t, z, θ, g, and ʒ. The last substitution occurred only once.

THE *d* SOUND

A large number of medial sound substitution errors were evident in all grades as were indistinct sounds in medial and final positions. The latter had a tendency to increase with the grade level. All of the sound

[1]Tables indicating the exact percentages of types and positions of errors on all sounds tested are available in the original thesis.

substitutions for *d* were t, with the exception of each of the following sounds which occurred once: θ t, θ, b, nt, k, n, w. The large number of mild errors in the medial position may be a result of the choice of the word *ladder*, rather than any deficiency on the sound. This fact was evident early in the study, but then it seemed advisable to continue with the word. Further study is needed comparing this with other words containing the medial *d*.

THE *s* SOUND

There was a gradual decrease as the grade level increased in the sound substitutions for the *s* sound until they practically disappear. The substitutions for the *s* sound are listed in the order of frequency: θ, t, ʃ, d, r, and h. The last three occurred only once.

However, the largest percentage of errors were indistinct sounds, which remain consistently high through all grades.

The dropping of substitutions probably results in some kind of an approximation of the *s* sound, which is indistinct. The number of indistinct sounds in the first grade may be a result of this together with the lack of teeth. This should be compared to Wellman's results which show substitutions to be the predominant type of error on up through the age of six years, with approximations next.

Morrison (7), Morris (6) both indicate *s* to be a common defective sound.

THE *g* SOUND

The largest number of errors found on the *g* sound were final substitutions, with a decrease in the number of errors as the grade level increases, but still a significant percentage in the sixth grade. The largest number of omissions and indistinct sounds were found in the final position. While percentages were not large, errors were still evident in the sixth grade.

The largest number of substitutions for *g* is its voiceless counterpart, k, which is a mild error. Other substitutions for *g* are: d, t, tʃ, ŋ, and the following which occurred only once: s, p, nd, dʒ.

THE ð SOUND

The largest percentage of errors found on the ð sound were substitutions of the sound in the final position. The percentage of omissions and indistinct sounds were also greatest in the final position. While there is a gradual decrease in the percentage of errors from the first to the sixth grade, a large percentage of substitutions, some omissions and indistinct sounds still existed in the sixth grade. Substitutions for the ð sound are listed in the order of frequency: v, θ (mild error), d, z, st, b. Wellman (8) reported that children of all ages were consistent in making a large number of errors on the final ð, the greater percentage of which were sound substitutions.

THE *v* SOUND

The largest percentage of errors on the *v* sound were sound substitutions. A decrease is shown from first grade through the sixth in the initial and final positions, but the percentage of substitutions in the sixth grade in the final position is still significant. The indistinct errors were greatest in the final position. Substitutions for the *v* sound are listed in the order of frequency: f (a mild error), b, d, θ, w, t, and l, ð,

z which occurred only once. Here, again, discounting the voiceless counterpart substituted for *v*, the largest number of errors of substitutions in the initial position may be a result of an error on the particular test word "valentine" rather than on the initial *v* sound itself. However, Wellman reports 30 per cent of six-year-old children making errors on the sound in the initial position.

THE *t* SOUND

The percentage of omissions occurs on the *t* sound rather constantly through all grades. The indistinct sounds increase with the grade level. No errors were made in the initial position of this sound. Substitutions are listed in the order of frequency: k, d and v, p, s, t. The last four each occurred only once.

THE *b* SOUND

The largest percentage of errors on the *b* sound are final substitutions. While there is a slight decrease in the percentage of errors in some grades, errors still exist in the sixth grade. However, the majority of these errors are mild, e. g., *p* substitution for *b*. The only other sound substitutions were d, k, v, and t, each occurring once. A few final indistinct sounds were made. Practically no other types of errors were made in other positions.

THE *t*ʃ SOUND

The largest percentage of errors on the *t*ʃ sound were substitutions in the final position, with a gradual decrease with the increase in grade level. Some final substitutions and final indistinct sounds exist in the fifth and sixth grades. Substitutions for the *t*ʃ sound are listed in the order of frequency: ʃ, t, s, t^s *θ*, with k, v, ʒ, and d occurring only once. Morrison (7) and Morris (6) both list *t* as one of the common defective sounds.

THE *r* SOUND

There was a decrease with the increase in grade level in the sound substitutions for the *r* sound. There were few errors above the 3B grade, except in the initial position, in which some substitutions still exist in fifth and sixth grades. A rather constant percentage of indistinct sounds are found in all grades above the first in which these is a larger percentage of errors. Final omissions also continue through all grades. The sound substitutions for *r* are listed in the order of frequency: w, ʌ, ŋ; and v, l, gr, br, and b each occurred once.

THE *k* SOUND

The largest percentage of errors on the *k* sound were omissions and indistinct sounds in the final positions, existing in all grades. Practically no substitutions were found after the 3B grade. The few substitutions for the *k* sound are listed in the order of frequency: t, f.

THE ʃ SOUND

The largest percentage of errors for the sound were initial substitutions with a gradual decrease of errors as the grade level increased. A few substitution errors persisted in upper grades, as did indistinct sounds. The substitutions for the sound are listed in order of difficulty: tʃ, s, t, *θ*; and k which occurred only once. Morris (7) reported ʃ to be a common defective sound.

THE *f* SOUND

There were practically no sound substitutions on the *f* sound after the 3B grade. There was a small percentage of final omissions in all grades, and the percentage of final indistinct sounds increased with the grade level. Substitutions for *f* are listed in the order of difficulty: p, s, *θ*, t, m; and k, ʃ, and v were each substituted once.

THE *p* SOUND

The largest percentage of errors on the *p* sound were final indistinct sounds and some final omissions were found in all grades. Only two substitutions were made, one a *t* sound and the other a *b* sound.

THE *l* SOUND

The largest number of errors on the *l* sound were found below the 3A grade and consisted of initial and medial sound substitutions. Substitutions for the *l* are listed in the order of frequency: w, d, n, d, v, r, t. The last three errors occurred only once.

The test results show no substitutions in the final position. The examiner believes there may have been a deficiency here because of the very close similarity of this final sound to the vowel which preceded it thus changing the word so slightly that the error may have not been detected.

THE ŋ SOUND

The percentage for all types of errors is essentially the same on the ŋ sound. Substitutions for the ŋ sound are listed in order of frequency: nd, nk, n, k, b.

THE *w* SOUND

A very small percentage of errors of all types, positions, and in all grades was found on the *w* sound. Substitutions are listed in the order of difficulty: r, v, p, l, t.

CONSONANT BLENDS

THE *st* BLEND

The largest number of errors on the *st* blend were substitutions in the medial and final positions. While there was a decrease in the percentage of substitutions through the grades, a large percentage of errors are still made in the sixth grade. The percentage of indistinct sounds did not vary much from grade to grade. Few omissions were found in any grade.

The following substitutions for *st* are listed in the order of frequency: s, tʃ, t, ʃ, *θ*t, *θ*, sk, k, t^{s} d. The *d* occurred only once. The large percentage of errors in the medial position may be the mispronunciation of the test word *wrist-watch* rather than a defect in the articulation of the sound.

THE *str* BLEND

The largest percentage of errors on the *str* blend were sound substitutions with a decrease in percentage as grade level increases. Some indistinct sounds are evident in fifth and sixth grades. Sound substitutions for *str* are listed in the order of frequency: tr, sk, sw, st, t, s, *θ*r, *θ*, ʃ, *θ*t, sr, tw, stw. The following occurred only once: r, kr, p, sfr, spr, tʃ.

THE *sk* BLEND

There was a gradual decrease in the initial and medial sound substitutions for the *sk* sound as the grade level increased. The initial and medial indistinct sounds remain practically the same for all grades. Substitutions for *sk* are listed according to frequency: k, s, t, st, θ, ks, θk, ʃ, sw, tw, sp, ʃt. The following occurred only once: wh, z, t, gw, m.

THE *dr* BLEND

The largest percentage of errors on initial *dr* blends were sound substitutions. A very small percentage of omissions and indistinct sounds were found. Substitutions for *dr* are listed in order of frequency: gr, tr, d, g, dw, tw, tʃ; and the following which occurred only once: r, w, s, dʒ, ʃ, b, br.

THE *fl* BLEND

The largest percentage of errors on the *fl* blend were sound substitutions and the percentage of errors decreased with the increase in grade level. A very small percentage of errors were found above the third grade. Substitutions for *fl* are listed in the order of frequency: f, fw, s, p, t, l, θ, sl, k, fr, tʃ, lw, ltd, vr, sf, p.

APPENDIX

WORDS ILLUSTRATED BY PICTURE TEST USED IN SURVEY

1.	s	saw	glasses	house
2.	z	zipper	razor	nose
3.	θ	thumb	birthday cake	mouth
4.	ð	this (2 circles. Which is larger, this one or this?)	feather (actual feather used)	smooth (Is it smooth or rough?)
5.	r	rake	fork	door
6.	l	lamp	yellow	bell
7.	dʒ	Jack-in-box	Jumping Jack	cage
8.	tʃ	chair	picture	church
9.	ʃ	shoe	fishing (What is man doing?)	fish
10.	k	key	birthday cake	birthday cake
11.	g	girl	wagon	flag
12.	f	fork	elephant	knife
13.	v	valentine	shovel	glove
14.	w	wagon	wrist watch	
15.	ʍ	wheel. (What kind of wheel is it? elicited the response, "wagon wheel," "car wheel," etc.)		
16.	ŋ		fingers	ring
17.	st	stop sign	wrist watch	nest
18.	sk	squirrel	basket	
19.	str	street car		
20.	dr	drinking. (What is boy doing?)		
21.	fl	flag	butterfly	
22.	b	book	table	tub
23.	p	pig	grapes	cup
24.	d	dog	ladder	bird
25.	t	table	butterfly	kite

A CITY AND COUNTY SPEECH RE-EDUCATION PROGRAM

J. ADELBERT YOUNG,

Speech Clinician, City Schools,
Superior, Wisconsin

The purpose of this paper is to discuss with you the place that speech re-education has in the "core curriculum of the Superior City Schools and of the Douglas County Schools. Since there are so many conceptions of a core curriculum, it is advisable to state the principles underlying ours. We, in the Superior Public Schools, believe that education should be concerned with the development of the individual to the fullest of his capacities as an individual and as a member of society. We believe that education should develop creative, dynamic, well integrated personalities. We also believe that speech is a natural and important part of the process of living, and is, therefore an important force in the complete harmonious development of the whole personality.

Douglas County teachers, for a number of years, were aware of the grave need of speech education and speech re-education. The administrators, however, were at a loss to know how to provide for such a program. The financial situation was such that no speech specialist could be hired. Very few of the teachers had had specific training in the teaching of speech and very few could afford to attend summer schools where such courses were offered. The real problem was not educating the county to the need of a speech program, but how to provide for such a program.

A few parents expressed a willingness to transport defective speech cases to Superior if a county clinic could be established. The Board of Education at Superior could not afford such an undertaking. They were having a big enough problem meeting the financial obligations of the city schools.

The problem was taken directly to the public. Talks to P. T. A.'s, to church groups and to civic and social organizations were given on:

1. What is a speech defect and how it is both a social and economic handicap.
2. A recommended procedure in handling a city and county speech re-education program and how much will be needed to finance the work.
3. A challenge that acquiring good speech is as vital as acquiring the ability to read or write.
4. What your speaking voice reveals.
5. A survey of the speech patterns in our schools.

SURVEY CHART I

Patterns	Superior	County	Parochial
Careless Speech	260	375	200
Brogues and Dialects	100	151	121
Defects in Articulation	233	250	123
Defects in Phonation	86	121	75
Total	679	897	519

SURVEY CHART II

SCHOOL CENSUS

Type of School	Number	Enrollment	Speech Defects
Superior:			
Senior High	2	1,920	112
Junior High	6	674	45
Elementary	11	1,985	308
Kindergarten	11	968	80
Douglas County:			
One room	19	433	86
State graded	15	1,168	121
High Schools	4	451	70
Parochial:			
Senior High	2	300	15
Junior	9	380	40
Grade	9	1,118	101
Kindergarten	2	51	20

The reactions to these talks were most encouraging. Soon the following equipment for a speech clinic was established:

EQUIPMENT	DONORS
Filing cabinets	Board of Education.
Psychological testing materials	Board of Education.
Speech testing materials	Board of Education.
Personality inventories	Board of Education.
Toys and materials for speech games	P. T. A. Groups.
Chairs and cots for relaxation	Board of Education.
Recording device	Veterans of Foreign Wars.
Audiometers	American Legion.
Laryngoscopic assemblies	Medical Profession.
Piano, pitch pipe, tuning fork, harmonica, wind instruments	Music Department.
Tongue depressors, applicators, tooth props, tubing, nasal speculum, stethoscope models, charts	Civic Organization.

The clinic was located in the Board of Administration Building, in a quiet place, free from interruptions and readily accessible to all concerned. It is a non-profit organization, operating under the supervision of the State Department of Public Instruction and in close co-operation with the department of Speech at the University of Wisconsin. The purposes of the clinic is to provide help for cases of stuttering, lisping, vocal disturbances, speech deficiencies and to aid those who are adjusting to pharyngeal and laryngeal operations.

To date the following cases have been diagnosed in the clinic:

SPEECH AND VOICE CASES

SPEECH CLINIC, SUPERIOR, WISCONSIN

DEFECT	CASES FROM Superior Public Schools	County Schools	Parochial Schools	Total
Aphasia	9	5	4	18
Articulatory	215	45	20	280
Cleft Lip	4	3	2	9
Cleft Palate	4	2	2	8
Foreign Accent	34	18	20	72
Lisp	60	39	18	117
Nasal	32	14	6	52
Oral Inactivity	10	16	6	32
Spastic	15	2	0	17
Stuttering	52	32	16	100
Voice	48	16	4	68
Undesirable concomitants	15	..	..	15
Total	498	192	98	788

Out of these 788 cases the following are receiving speech therapy:

DISORDERS RECEIVING CLINICAL TREATMENT

SPEECH CLINIC, SUPERIOR, WISCONSIN

Type	City	County	Parochial	Total
Cleft Palate	4	2	2	8
(a) Surgical repair impracticable	2	1	0	
(b) After surgical repair	2	1	2	
Vocal Disturbances	48	16	4	68
Caused by:				
(a) Pharyngeal and laryngeal pathology	15	6	1	
(b) Functional	33	10	3	
Stuttering	40	4	2	46
Spastic	7	2		9
Mongolism	2			2
Undesirable concomitants of speech	15			15
Caused by hearing deficiencies	2			2
Total	118	24	8	150

The next step after the clinic was established was to reorganize the speech re-educational program in the Superior Schools whereby the classroom teachers could relieve the speech specialists of the many articulatory defects and minor functional vocal disturbances. This involved a special training program. Meetings for both city and rural teachers were called after school hours and on Saturday.

The following topics were discussed at these meetings:

1. The Teacher and Speech Defects.
   a. Speech and Voice of the Teacher.
   b. Speech Responsibilities of the Teacher and How the Teacher Can Meet These Responsibilities.
   c. Phonetics for the Teachers.
   d. Demonstrations.

2. The Parents and Speech Defects.
   a. The Family and Emotional Patterns.
   b. Personal Adjustments.
   c. Prevention Better Than Cure.
   d. What the Parent Can Do.
3. Speech Hygiene for Teachers and Parents.
4. The Speech Teacher's Challenge.
5. The Speech of the Child.
   a. Production of the Elements of English Speech.
   b. Speech Objectives at the Various Age Levels and Successful Means of Accomplishing Them.
   c. Types of Articulatory Defects and Corrective Training to be Administered.
   d. Speech Defects and Hearing Deficiencies.
   e. The Speechless Child.
   f. The Stuttering Child.
   g. Vocal Disturbances and How These Cases May Be Handled.
6. A Trip Through the Speech Clinic.
7. Putting the Speech Program Into Operation.

Though the corrective phase is important, we feel the development phase must not be neglected. This year speech is not restricted to any definite grade or period but is an integral part of all the activities in the curriculum. Every teacher and every pupil has been given the opportunity to be an active participant.

I submit a partial program of this integration:

Department	Speech Training
Health and Physical Education.	1. Correct improper breathing habits, poor posture. 2. Develop muscles used for breathing and for speech. 3. Increase vital capacity.
Music.....	1. Breathing control. 2. Poise. 3. Enunciation. 4. Rhythm and coordination. 5. Relaxation. 6. Voice consciousness. 7. Inflection.
Art.....	1. Self-expression to merge with speech. 2. Develop a sense of beauty, coordination, humor, etc.
Dramatics and Speech.....	1. Developing appreciation of good speaking voices. 2. Expression and dramatization of speech hygiene. 3. Recording voices and speeches for discussion. 4. Increase the ability to mould opinion and influence conduct. 5. Good articulation, inflection. 6. Cultivate emotional control. 7. Stimulate the imagination, initiativeness.
Classroom in general.....	1. Develop efficiency in the mechanics of distinctness, audibility, etc. 2. See that remedial work is followed. 3. Cultivate adaptability. 4. Establishing proper standards of speech. 5. Eradicating bad habits of speech.

The procedure for rehabilitation through the speech clinic is as follows:

A. Diagnostic Procedure.
  1. Testing.
    a. Preliminary.
      1. Stimulation is provided so that there is an outpouring of expression straight from life.
      2. Talk about subjects alive to students.
      3. Play games.
      4. Dramatize sounds.
    b. Formal testing.
      1. Read sentences containing sounds units.
      2. Pictures for sounds.
      3. Intelligence test given.
      4. Personality inventory taken.
      5. Hearing tested.
        a. 2A and 4A Audiometer.
        b. Seashoretests.
      6. Testing for diagnostic technique.
        a. Physician.
        b. Dentist.
        c. Psychiatrist.
        d. School psychologist.
  2. Case history taken.
    a. Language background.
    b. Behaviorisms of student and family.
    c. Personal history.
    d. Health history.
    e. Speech history.
  3. Recording.
    a. Diagnostic chart.
    b. Case history chart.
    c. Hearing chart.
    d. Speech chart.
    e. Personality chart.
    f. Intelligence chart.

B. Therapy.
  1. No concrete specific therapy can be outlined, but generalities will be followed as:
    a. Situation discussed sincerely with teachers and parents.
    b. Child stimulated to co-operate by creating a desire to make modifications in the direction to better speech and voice.
    c. Create an atmosphere as will make the student feel that he is not inferior or excluded from rest of group.

The pupils are referred to the speech correctionists through various channels. The correctionists study the whole child, diagnose the problem, determine the cause, evolve plans and then refer him to the speech clinic and to the agencies best equipped to help the speech clinic carry out the proper therapy.

In conclusion, I present a chart outlining the place speech re-education plays in the "core curriculum" of the Superior Public Schools and in Douglas County Schools.

SUPERIOR PUBLIC SCHOOL PROGRAM FOR SPEECH, VOICE AND PERSONALITY REHABILITATION

SUPERINTENDENT

General Supervision

PRINCIPALS

Advisors
and
Counselors

CLASSROOMS	HOME	DEANS	SPECIAL SUPERVISORS
Application of therapy. Record of progress.	Cooperate with information and with application therapy.	Information on objective and reliable data.	Recommendation and information on special cases. Application of therapy for special cases.

CORRECTIVE SPEECH TEACHERS

Supervision of Speech Improvement program throughout system. Supervision of Speech Hygiene program for preventative purposes.
Case and speech histories.
Remedial work with defectives.
Conferences with teachers and parents.

SPEECH, VOICE, PERSONALITY CLINIC

Complete study of whole child.
Diagnostic testing.
Administering therapy for speech voice rehabilitation.
Emotional adjustments.
Habit training.

MEDICAL, DENTAL NURSES	ATTENDANCE, GUIDANCE DEPARTMENT	SPECIAL DEPARTMENT
Physical examinations. Health supervision. Health records.	Analysis of special tests—intelligence, personality, vocational achievement.	1. Deaf. 2. Lip reading for hard of hearing. 3. Orthopedic. 4. Vision Aid.

THE SPEECH CLINICIAN AND THE CLASSROOM TEACHER CO-OPERATE IN A SPEECH CORRECTION PROGRAM

MYFANWY E. CHAPMAN,
Minneapolis Public Schools

This paper deals with three questions:

1. What can be done to aid the classroom teacher to deal with speech cases in a building to which a speech correctionist is not assigned?
2. What can be done to aid the classroom teacher, in the lower elementary grades, when the speech clinician, assigned to the building, is unable to take all cases needing assistance?
3. What can be done to inform the classroom teacher and gain her co-operation in a Junior or Senior High School speech program, when the speech clinician and classroom teacher have little time for personal conferences?

I should like to preface my discussion with a brief explanation of the speech setup in the Minneapolis Public Schools.

There are thirteen speech clinicians in the department. Twelve of these are itinerate clinicians, and one has full time work at the Michael Dowling School for Crippled and Cardiac Cases. Speech correction is a part of the Special Education program, under Miss May E. Bryne, director.

Each of the twelve itinerate clinicians is assigned a district. Speech surveys of the schools in these districts are made in the fall. This helps ascertain where the clinician shall give the weight of her time. Classes are organized in those schools where the need is greatest. The clinician acts as consultant in the remaining schools. Classes are conducted four days of the week. Fridays are given over to case history work, clinical testing, consultation, and clerical work. The case load averages one hundred for each clinician.

Certain problems arise in such a set up. Problem I: "What can be done to aid the classroom teacher to deal with speech cases in a building to which a speech correctionist is not assigned?" A specific example will illustrate how the consultation plan answers this question.

There are ten schools in my district. Last year classes were conducted in six, the others were consulting schools. Help was given the consulting schools when it was requested: i. e.,

A list of speech cases, obtained from the fall survey, stating the type of defect and the treatment advised, was given each classroom teacher.

The technique of auditory stimulation was demonstrated in the classroom. Word lists for use in stimulation were provided. Mimeographed copies of "Notations for the Classroom Teacher" proved helpful. These read as follows:

AUDITORY STIMULATION

Goal: Setting up in the brain patterns for particular speech sounds.

Points to Remember:

1. That groups of words are stimulus words, and not drill words. (Case's response is merely to see whether he has acquired the pattern.)
2. That groups of stimulus words should have the same speech sound in uniform position, and in no other part of the word in the group: i. e., for initial s—say, sail, same, sake; for medial s—icicle, bursting, trusting, racing; for final s—nice, goose, lace, face.
3. To pause several seconds after each stimulation before requesting the response.
4. To avoid working with more than one sound at a time.
5. That stimulation should be through the right ear, if the student is right sided, and through the left ear, if he is left sided.
6. That maturation takes place in periods of non-stimulation also.

SOUND DISCRIMINATION

Variations of the following were used for sound discriminations, i. e.,

Give the child the following instructions, "If the word contains the sound "s," take a step forward, if not stand still." Then give such words as "say—they," "the—see," being careful that you are not standing where he can read your lips.

"If the word I say contains the "s" sound, put it in column one, if not put it in column two." Use words such as "see—zoo," "think—sink," "shoe—see."

The auditory stimulation and sound discrimination approach can be used more successfully by the untrained individual than the kinesthetic, or visual approach, with less likelihood of harmful effects.

Where the children in these classrooms were found to be very tense, relaxation games and exercises were suggested.

STUTTERING

It is found that certain common advice to stutterers often proves very harmful. We offered a few "Don'ts" for teachers, which contained such concrete statements as: "Don't tell the stutterer to stop and start over."

"Don't tell him to stop and think what he is going to say."

"Don't tell him to stop and take a deep breath."

"Don't talk for him, in other words, don't take the words out of his mouth."

Sheets for recording observations of manual activities were provided the classroom teacher.

Reprints of helpful articles by speech authorities were circulated.

A case history, in the more severe cases, was felt essential. A more complete understanding of the problem, thus secured further aided us in offering suggestions to the parent for home management.

In checking back to see of what benefit this plan had been, it was found the teachers who desired help and were alert to individual needs and differences, did an excellent job in following the suggestions.

Stress of speech work having shifted from the lower grades to the upper grades, frequently leaves the kindergarten and primary teachers in need of help with some speech problems. Hence, Problem II arises: "What can be done to aid the classroom teacher in the lower elementary grades, when the speech clinician, assigned to the building, is unable to take all the cases needing assistance?"

A plan similar to the one already discussed is being used. The speech clinician gives occasional lessons in the classroom. She invites the teacher to visit regular speech classes, and distributes literature containing suggestions for exercises and speech games, which can be conducted in the classroom. Time does not permit more detailed discussion of these exercises. Building meetings are conducted, in which the clinician takes up speech problems in a general way, and makes general suggestions for therapy. A monograph entitled, "A Setting For Health," has been useful as a basis for discussion in some of these meetings.

Until last year little speech correction had been done in the Junior and Senior High Schools. Consequently, the teachers in these Secondary schools had not had the background of help from speech clinicians which those in the Elementary schools had been given. So the third question arose: "What can be done to inform the classroom teacher and gain her co-operation in a Junior or Senior High School Speech Program, when the speech clinician and classroom teacher have little time for personal conferences?"

These teachers were anxious to know what to do, especially when they had severe stutterers in their classes. The use of bulletins seemed a feasible way to spread information. Essential points to consider in writing these bulletins were the use of layman's language and brevity.

As a start in this program, we have issued bulletins to teachers as each new phase in the program with stutterers is introduced. Therapy suggested in these is based on research and practice. We are particularly indebted to the works of Dr. Bryng Bryngelson and Dr. Charles Van Riper, as source of information.

Speech Bulletin Number I read as follows: "To you who have stutterers in your classes: We are striving for an 'Objective Attitude' toward our speech differences. By this we mean, we are (1) trying to get a thorough understanding of self; (2) aiming to be very frank toward our speech difficulty by talking freely about it and explaining stuttering, as we see it, to everyone; (3) asking others not to assist us or excuse us in communicating ideas; (4) no longer trying to cover up stuttering; (5) using the mirror as an aid in helping us overcome sensitiveness

toward stuttering, also that we may better know how we look and act when we stutter; (6) aiming to be honest, since honesty creates more friendships, it is the best policy to pursue in speech as in other things; (7) competing with self, instead of with others, for we know that we can never be or live exactly like anyone else; (8) seeking insight into our behavior. If we behave in an infantile manner, we try to find out what is causing us to do this; (9) learning how to live with and adjust to our way of speaking instead of being anti-social because of it, as some of us may always stutter.

All this program helps in self-management, and any assistance you can give us in our classes toward maintaining an 'Objective Attitude' will be greatly appreciated."

This bulletin was followed by an assignment to stutterers such as this: "Before English Class go to your English teacher (or some other teacher if you prefer) and ask if you may talk to the class for a few minutes. Then say something of this sort, "I don't know whether you are all aware of the fact that I have trouble in speaking at times. We call this 'stuttering.' At present I am attending a speech class twice a week. We have learned so far, that an 'Objective Attitude' toward our speech difference is very healthy. The first step in getting such an attitude is what we call 'Advertising' our stutter. That's why I have asked for this opportunity to tell you about it. Thank you."

The classroom teacher is asked to indicate in some way when this assignment has been carried out.

Speech Bulletin Number II followed: To you who have stutterers in your classes: Fears usually start from expecting something unpleasant. The stutterer often is full of fears; fear of talking to certain people, fear of talking in certain situations, fear of saying certain words. As these fears grow, he feels that he must do something to try to keep from stuttering. He begins to use tricks of various kinds, such as avoiding speech situations and devices to help him start, such as body movements and the like. When he first uses these they seem to help, but later they become a part of his speech pattern, and are often the thing which makes his speech seem so different.

We are trying to discover what we do, because we must first know what we do, before we can stop doing it.

Will you help by giving us opportunities to recite? If we refuse you will know we are still letting these fears control our actions, and we may need added encouragement and understanding to aid us in getting up courage to recite.

Other speech bulletins are on such subjects as "Advertising," "Voluntary Stuttering," and "Sidedness."

Bulletins of a different type are also found useful: To the Teacher of a Stutterer:

"Time being at a premium for all of us, I am taking this way of bringing to you the point of view of the Speech Department in the handling of the stutterer."

Psychological studies show that unwillingness to stutter increases the amount of difficulty. The stutterer's willingness to stutter in all situations is the first goal of our therapy. It is in the attempt to help the child to adjust to his speech, as it is, that we urge him to advertise

his stutter. The case who is co-operating will use his classroom to exaggerate his speech difficulty. Do not be surprised at what may appear as an increase in the severity of the stutter.

May I give these suggestions in dealing with the speech defective?

Maintain an objective and unemotional attitude towards his difficulties.

Discuss his speech and its attendant problems with him.

Make certain that he is willing to make oral recitations, and then give him every possible opportunity to do so. (A serious harm may be done by forcing a stutterer to recite before he is sufficiently adjusted).

Let the other pupils in your class see your matter-of-fact attitude.

Help develop a sense of humor in the pupil about his speech.

Congratulate and encourage a stutterer when he lets the stutter "come out."

Never compliment a stutterer for the periods when he enjoys free speech. (They all have such reliefs).

I shall be glad to discuss any problem which may arise in regard to ——'s speech.

This program is in a great measure eliminating many emotional upsets which often center around poor handling of the speech handicapped child in the classroom. Many of the classroom teachers have taken time to come and tell us how much the plan is helping them. These facts led us to believe that you would be interested in our attempts to analyze and answer such problems as I have presented.

AMENDMENTS TO BY-LAWS

The following qualifications for various classifications of membership were adopted at the annual convention in Detroit, December 29–31, 1941.

Amendments to By-Laws Proposed by Committee on Education

Section 4. The annual dues shall be three dollars for Associates, four dollars for Professional Members, and five dollars for Fellows, and shall be payable in advance at the annual meeting.

Section 5. Add the words "Professional Member" after Fellow wherever this word occurs.

Section 7. Qualifications for the various classifications of membership shall be as follows:

I. *Associates.*

(a) For the guidance of Fellows who desire to nominate Associates for membership in the Association, the following clauses shall serve as an outline of the desirable qualities of Associates:

1. An Associate should be a person of social and intellectual maturity, of high ethical standards, of stable and adjusted personality.

2. An Associate should have the A. B. degree or equivalent.
3. An Associate should have completed a year of clinical experience since the granting of the A. B., and should be employed in a position relating to the speech corrective field.
4. An Associate should have had a good basic preparation in Phonetics, Anatomy, Physiology, and Physics of Speech, Principles of Speech Pathology, Correction, and Therapy, and actual Laboratory and clinical work to the extent generally recognized as being covered in 18 semester hours of academic courses, although the recommending Fellows may, at their discretion, recognize this achievement in other ways than by semester or quarter residence, as, for example, by examination.
5. An Associate should have had an additional preparation in allied subjects such as Education Psychology, Acoustics, and similar disciplines of at least 12 hours additional to that stated in Article 4, exclusive of preparation in the field of the speech arts.
6. An Associate should have had at least 200 clock hours of clinical work under supervision consisting of observation and actual experience with clinical cases, the operation of laboratory and clinical equipment, the planning of case programs, and objective reporting of case records, the operation of a speech clinic, and proper professional relationships with members of other professions. The clock hours of experience should cover a variety of cases, so that the Associate will have had sufficient professional background to know his shortcomings, and to know when to seek expert guidance from Professional Members and Fellows, and from members of other professions.

(b) Present Associate Members at the time of passage of Section 7 are automatically declared Associates of the Association.

II. *Professional Members.*

1. A Professional Member should be a person prepared to give counsel, to head speech clinics, do diagnosis of speech defects, be expert in speech therapy, and able to instruct others in this art and science. He should have initiative and resourcefulness, should understand and be able to apply objective approaches to problems in this field.
2. A Professional Member shall meet all of the qualifications of an Associate, and shall, in addition:
   a. Have the Master's degree, or its equivalent.
   b. Have had at least three years clinical experience of a successful nature beyond that required for Associates.
   c. Have had at least the equivalent of 24 semester hours in courses emphasizing clinical practice and theory and allied subjects over and above that suggested for Associates.
   d. Have a good knowledge of the methods and principles of scientific investigation.

3. The Committee on Education shall, at the request of any Associate who has been a member of the Association for five years, and who either holds a position as head of a speech clinic or instructor in a college department in this field, or is engaged in speech correction in a position comparable to that of directing a speech clinic, and who has held such a position for five years or longer, give an examination at a convenient point for the Associate under delegated and responsible examiners. This examination shall be drawn by the Committee on Education and given in a sealed envelope to the delegated examiner. Upon passage of the examination by a grade of 85% or its equivalent, and upon recommendation by two Fellows, any or all of the academic qualifications with the exception of the A. B. degree may be waived by the Council, and the Fellows, and the individual voted to Professional Membership. The examination paper shall form a part of the confidential records of the Secretary of the Association.

III. *Fellows.*

1. Fellows shall be persons who have made significant and worthy contributions to the field of speech correction, and who have demonstrated qualities of general merit in the field.
   a. Significant and worthy contributions to the field are interpreted to mean either:
      I. Publication of three objective papers of merit in the field or,
      II. Presentation of fifty case reports of objective merit from his clinical work, and the publication of a worthy paper on these case studies.
2. Fellows shall possess the M. A., M. S., Ph. D., Sc. D., M. D., D. D. S., D. D. M., or the equivalent degrees.
3. The Council, upon nomination by two Fellows, and upon recommendation by the Committee on Education, may from time to time recommend to the Fellows gathered at any regularly constituted business session that distinguished members of other professions who have made significant and worthy contributions to the field of speech correction be elevated to Fellowship in the Association. Upon a majority vote of the Fellows (a quorum) at the session, such individuals may become Fellows without the qualifications for Professional Membership.

American Speech Correction Association

The American Speech Correction Association was organized in New York City in December, 1925, at the annual convention of the National Association of Teachers of Speech with which this organization has always been affiliated. Its original name, the American Academy of Speech Correction, was changed to the American Society for the Study of Disorders of Speech in 1927, and the present name was acquired in December, 1934.

The purposes of the American Speech Correction Association as set forth in its Constitution are:

1. To stimulate among educators, physicians, and others of the general public a deeper, more intelligent interest in problems of speech correction.
2. To raise as rapidly as possible existing standards of practice among workers in the field of speech correction.
3. To secure public recognition of the practice of speech correction as an organized *profession.*
4. To furnish this new profession with responsible and authoritative leadership.
5. To make this leadership generally respected by our good works, i. e., by our scholarly research work, publicity work, and administrative skill.
6. To make membership in our organization a coveted recognition of merit and in this way to furnish workers in the field of speech correction with a powerful incentive to greater achievements.

The Association is composed of Associates, Professional Members and Fellows. Any reputable speech correctionist with adequate training in the field and with a college education or its equivalent is eligible for election as an Associate.

A Professional Member is a person prepared to give counsel, to head speech clinics, do diagnosis of speech defects, be expert in speech therapy, and able to instruct others in this art and science.

A Fellow is a person who has made significant and worthy contributions to the field of speech correction, and who has demonstrated qualities of general merit in the field.

American Speech Correction Association

Membership List 1942

1942 LIST OF MEMBERS

The following alphabetical list of members of the Association gives the title, degree, professional rank, and address of every Fellow and Associate whose 1942 membership dues were paid on February 1, 1942, in accordance with Section 4 of Article IV of the Constitution as amended at the 1941 Detroit Convention. This is not a complete list of members.

NOTE.—In the following list the names of the Associates are indicated by (A), the names of the Professional Members by (P), and the names of Fellows are indicated by (F).

Most of the abbreviations used are standard and self-explanatory. The less obvious ones are as follows: correction—cor., improvement—imp., teacher—T.

Teachers teach in the city where their address is listed unless otherwise noted.

In listing institutions which have granted degrees, all state universities have been designated simply by the abbreviation of the state.

(A) ADAMS, MINNIE HARRIS, A.B. (Radford State T.) 1935, A.M. (Iowa) 1940. T., Speech Cor., Pub. Sch., 324 Vernon Ave., Lynchburg, Va.

(A) AINSWORTH, STANLEY H., A.B. (Mich. State Nor.) 1933, A.M. (Iowa) 1937. Sup. of Speech Cor., Coleraine, Minn.

(A) AITCHISON, ADAM MORTON GLASS, A.B. (Ripon Coll.) 1926, A.M. (T. Coll., Columbia) 1939. Instr. in Speech at Columbia; Tutor in Speech at Queens Coll., 65-30 Kissena Blvd., Flushing, N. Y.

(A) AMIDON, HILDA FARNUM, (Mrs.), S.B. in Ed. (N. Y. Univ.) 1935, A.M. in Speech (Iowa Univ.) 1941. Pub. Sch. Sup. of Speech Cor. and Lip Reading, 282A Sigourney St., Hartford, Conn.

(A) AMMONS, ROBERT BRUCE, B.A. (San Diego State Coll.) 1939. Grad. Asst. Speech Pathology, State Univ. of Iowa. 114 N. Gilbert, Iowa City, Iowa.

(A) ANDERSON, DOROTHY IOLA, A.B. (Iowa) 1928, A.M. (ibid) 1931. Instr. in Speech, Univ. of Ill. 130 E. Jefferson, Apt. 37, Iowa City, Iowa.

(A) ANDERSON, JEANETTE OLIVE, B.A. (Rockford Coll.) 1938, M.A. (Wis. Univ.) 1940. Harriet Remington Laird Fellow, Univ. of Wis. 416 Rome Ave., Rockford, Ill. Dept. of Speech, Univ. of Wis., Madison, Wis.

(A) ANDERSON, MARGARET LOUISE, A.B. (Knox) 1917, A.M. (Univ. Kansas) 1925. Asst. Prof. of Speech, Univ. of Kansas. 1126 Louisiana St., Lawrence, Kansas.

(A) ANSBERRY, MERLE, A.B. (Univ. Calif.) 1929, A.M. (ibid) 1931, Ph.D. (Wis.) 1937. Dir. of Speech Clin., Instr. in Pub. Speaking, Univ. of Virginia. 114 Observatory Ave., Charlottesville, Virginia.

(A) AREY, MABEL-LOUISE, B.L.I. (Emerson) 1926, A.M. (Pa. State) 1937. Clin. Sup. of Speech Cor., Speech Clin., Indiana State Teachers Coll. Apt. 1, 659 Swan St., Terre Haute, Indiana.

(A) ARNOLD, GENEVIEVE, A.B. (Minn.) 1934, A.M. (ibid) 1936. Pub. Sch. T. of Speech Cor. 607 W. Maple St., Austin, Minn.

(A) ATHERTON, GRACE WILLIAMS (Mrs.). In charge of Speech Cor., Washington, D. C., Pub. Sch.; Dir. of Speech Cor. Clinics, Wilson T. Coll. and Episcopal Eye, Ear and Throat Hosp., Lecturer, Wilson Teachers College, Washington. 9300 Conn. Ave., Chevy Chase, Md.

(A) ATTENBOROUGH, ELIZABETH MARIE, B.S. (Rutgers) 1928. T. Speech Cor., Pub. Sch. 319 Westfield Ave., Elizabeth, New Jersey.

(A) BACKUS, OLLIE L., A.B. (Mich.) 1929, A.M. (ibid) 1930, Ph.D. (Wis.) 1933. Chairman, Dept. of Speech, State T. Coll., Slippery Rock, Pa.

(A) BAKER, MAE HANNAH, B.L.I. (Emerson) 1921, A.B. (Keuka) 1927, A.M. (Columbia) 1928. Prof. of Speech and Drama and Speech Pathology, Keuka Coll., Keuka Pk, N. Y.

(A) BAKES, FRANK P., A.B. (Ohio State) 1924, A.M. (ibid) 1927, Ph.D. (Iowa) 1938. Psychol., Ohio Bureau of Juvenile Research, 2280 W. Broad St., Columbus, Ohio.

(A) BALL, MARIE AGNES, S.B. (Univ. Rochester) 1929, A.M. (ibid) 1932. Lecturer in Speech Ed., Div. of Univ. Extension, Univ. of Rochester, Speech Specialist, Rochester Pub. Sch. 145 Seneca Pkwy., Rochester, N. Y.

(A) BANGS, JACK L., A.B. (Univ. Wash.) 1939, A.M. (ibid) 1941. Dir. of Speech Clin., Instr. Speech Path. and Cor., Univ. of Oregon. 1418 E. 23, Eugene, Ore.

(A) BARNETT, ROBERTA, A.B. (Univ. Mo.) 1923, A.M. (Columbia Univ.) 1929. Instr. in Speech, State Teachers Coll., E. Stroudsburg, Pa.

(A) BARRITT, VIRGIL CROOK (Mrs.), A.B. (Kansas Univ.) 1936. Instr. in Speech Cor., Wichita Univ. 1337 No. Vassar, Wichita, Kansas.

(A) BASSETT, DOROTHEA MAE, B.A. (Univ. of Minn.) 1941. T. Speech Cor., Pub. Sch., St. Cloud, Minn. 227 13th Ave. So., St. Cloud, Minn.

(A) BEBOUT, BETTY, B.A. (Iowa Univ.) 1934, M.A. (ibid) 1940, A.B. (Stephens) 1932. Speech Clinician, Speech Clin., Stephens Coll., Columbia, Mo. 107 Colonial Apt., Burlington, Iowa.

(A) BECKER, REBECCA, B.A. (Wis.) 1932, M.A. (ibid) 1933. T. Speech Cor., Milwaukee Pub. Sch. 2537 No. Farwell, Milwaukee, Wis.

(A) BECKEY, RUTH ELIZABETH, B.S. (Kan. S. T. Coll.) 1929, M.A. (Univ. Iowa) 1936, Ph.D. (Univ. of S. Calif.) 1940. Dir. of Speech Clin., Ohio Univ., Athens, Ohio. 18½ W. Carpenter, Athens, Ohio.

(A) BELL, ALTA REBECCA, A.B. (Ohio Wesleyan) 1918, A.M. (T. Coll., Columbia) 1927. Pub. Sch. T. of Speech Cor., 720 Bierman St., York, Pa.

(F) BENDER, JAMES F., S.B. (Columbia) 1928, C.P. (N. Y. S.) 1931, Ph.D. (Columbia) 1939. Chr. of Dept. of Speech, Queens Coll., 65–30 Kissena Blvd., Flushing, N. Y.

(A) BENNIE, JEAN ADRIS, B.A. (Univ. of Iowa) 1941. T. of Speech Cor. at So. Dak. Sch. for the Deaf, Sioux Falls, So. Dak. 817 Lawe St., Green Bay, Wis.

(A) BERQUIST, RUTH WHITTAKER (Mrs. Clarence W. Berquist), A.B. (Macalester) 1924. Pub. Sch. T. of Speech Cor., St. Paul. Box 168, Chicago City, Minn.

(A) BERRY, MILDRED FREBURG (Mrs. James Berry), A.B. (Iowa) 1922, A.M. (ibid) 1925, Ph.D. (Wis.) 1937. Dir. of Speech Clin., Rockford Coll., Rockford, Ill.

(A) BERWICK, NAOMI HUNT (Mrs.), A.B. (Hardin-Simmons) 1929, A.M. (Iowa) 1939. Private Studio of Speech Cor., 8 Collegeview Ave., Toronto, Ontario, Canada.

(A) BETZ, FRANCES, T. of Speech Cor., Chicago Pub. Sch. 6536 Glenwood Ave., Chicago, Ill.

(A) BISHOP, JEANNE H. (Mrs. Robert S. Fisk).

(A) BISSELL, VELMA L. (Mrs. Hiser).

(A) BLACK, JOHN WILSON, A.B. (Wabash Coll.) 1927, A.M. (Iowa) 1930, Ph.D. (Iowa) 1935. Prof. of Speech, Kenyon College, Gambier, Ohio.

(A) BLANCHARD, DOROTHY LUCILE (Mrs. Thad A.), Pub. Sch. T. of Speech Cor., 312 Avalon Ave., Detroit, Mich.

(A) BLANCHETTE, ALVENA M., S.B. (Minn.) 1926. Pub. Sch. T. of Speech Cor. The Leamington, Minneapolis, Minn.

(F) BLANTON, SMILEY, S.B. (Vanderbilt) 1904, M.D. (Cornell) 1914. Diploma in Psychol. Med. (Royal Coll. of Phys. and Surgeons of London and England) 1923. Consultant in Psychiatry, Marble Collegiate Church, N. Y. City. 115 E. 61st St., New York City.

(A) BLAZEK, J. WALLACE, A.B. (Coe Coll.) 1934. T. of Pub. Speech, Speech Pathol. Clinician, Twp. H. S. 214 E. Church, Collinsville, Ill.

(F) BLOOMER, HENRY HARLAN, A.B. (Ill.) 1930, A.M. (Mich.) 1933, Ph.D. (ibid) 1935. Manager of Speech Clin. and Asst. Prof. of Speech, Univ. of Mich., Ann Arbor, Mich.

(F) BLUEMEL, CHARLES SIDNEY, A.M. (Colo.) 1915, M.D. (ibid) 1916, M.R.C.S. (England) 1917, F.A.C.P., 1931. Physician, 550 Metropolitan Bldg., Denver, Colo.

(A) BOHANNON, DOROTHY ELIZABETH, B.S. (S. W. Mo. Teachers) 1928, M.A. (Iowa) 1938. Teacher of Speech Cor., Pub. Sch., Mankato, Minn. 214 Locke St., Mankato, Minn.

(A) BOLLINGER, MARIE (Mrs. Homer R. Bryant).

(A) BOSLEY, ELIZABETH (Mrs. W. Elvis Bosley), A.B. (Friends Univ.) 1933, A.M. (Univ. Kansas) 1935. Instr. in Speech Clin., Flo Brown Mem. Lab., Univ. of Wichita. 823 Sedgwick, Wichita, Kansas.

(A) BOWLES, HELEN (Mrs. John T. Bycraft, II).

(A) BRACKET, I. PARSONS, S.B. (Northwestern) 1938, A.M. (ibid) 1940. Asst. in Training of the Speaking Voice and Clin., Northwestern Univ. Sch. of Speech, Evanston, Ill.

(A) BRADLEY, RUTH JULIA, E.B. (Univ. Akron) 1926, A.M. (Columbia) 1932. Dir. of Speech Clin. and Asst. Prof. of English, Speech and Dramatics, State T. Coll., Wilimantic, Conn.

(A) BRASTED, F. KENNETH, A.B. (Univ. of Fla.) 1935, A.M. (T. C., Columbia) 1938. Chair. Speech Dept., Fordham Univ., Bronx, New York City. 540-B So. 6th Ave., Mt. Vernon, New York.

(A) BRIGHAM, FLEDA MARGARET, A.B. (Occidental Coll.) 1930, A.M. (S. Calif.) 1936, D.O. (L. A. Coll. Osteopathic Physicians and Surgeons) 1936. Jr. Attending Physicians, Neuro-Psychiatric Service, L. A. County Osteopathic Hosp.; Speech Cor., Private Practice at 1711 Monterey Rd., S. Pasadena, Calif.

(A) BRILTY, FRANCIS XAVIER, B.A. (Wis.) 1937, M.A. (Ohio State) 1940. Assistant in Voice Science and Phonetics Lab., Ohio State Univ. 37½ E. Woodruff Ave., Columbus, Ohio.

(A) BRITTON, HENRY CHASE, B.S. (Boston Univ.) 1934, M.A. (ibid) 1936. T. Speech Cor., Curry School. 115 Ashland St., Malden, Mass.

(A) BRODY, SARAH ELIZABETH, B.S. (Univ. of Minn.) 1940. Clinician, Davison Sch. of Speech Cor., 1780 No. Decatur Rd., Atlanta, Ga. 1106 Oliver Ave. N., Minneapolis, Minn.

(A) BRONSTEIN, ARTHUR JORDAN, A.B. (Coll. City N. Y.) 1934, A.M. (Columbia) 1936. Instr. Dept. of Speech, Queens Coll., Flushing, N. Y. 67–70 Yellowstone Blvd., Forest Hills, N. Y.

(A) BROSIUS, JANE ELIZABETH, A.B. (Kansas Univ.) 1935. Ass't Flo Brown Mem. Lab., Univ. of Wichita. 320 N. Rutan, Wichita, Kansas.

(A) BROWN, FRANCES M. (Mrs. Spencer F. Brown), B.S. (Univ. Minn.) 1939. Speech Clinician, Minneapolis Pub. Sch. 617 9th Ave. S. E., Minneapolis, Minn.

(F) BROWN, FREDERICK WARNER, A.M. (Princeton) 1917, Ph.B. (Heidelberg) 1914. Dir. of Speech Clin., Sewanhaka Sch. Dis., Nassau Co., N. Y. 34 Raff Ave., Floral Park, N. Y.

(F) BROWN, SPENCER F., A.B. (Shurtleff) 1933, A.M. (Iowa) 1935, Ph.D. (ibid) 1937. Instr. in Speech, Univ. of Minn., Minneapolis, Minn.

(A) BRYANT, MARIE BOLLINGER (Mrs. Homer L. Bryant), B.S. (Kansas State Teachers Coll.) 1922, A.M. (Columbia) 1927. Dir. of Speech, Jamaica Teachers Coll., N. Y., Chr. of Speech Dept., Jamaica High Sch., N. Y. 300 Merrick Road, Rockville Center, N. Y.

(A) BRYNE, MAY EDITH, S.B. (Minn.) 1922. T. of Speech Cor., East High, 4th and Central, Minneapolis, Minn.

(F) BRYNGELSON, BRYNG, A.B. (Carleton) 1916, A.M. (Iowa) 1926, Ph.D. (ibid) 1931. Dir. of Speech Clin. and Assoc. Prof. of Speech, Speech Clin., Univ. of Minn., Minneapolis, Minn.

(A) BUCHOLZ, CLARENCE ARTHUR, A.B. (Baldwin-Wallace) 1923, B.D. (Drew Univ.) 1925, A.M. (T. Coll., Columbia) 1928. Dir. of Y. M. C. A. Speech Cor. Clinic, 2200 Prospect Ave., Cleveland, Ohio.

(A) BUCK, MURIEL, B.A. (Univ. Washington) 1936, M.A. (ibid) 1938. Asst. in Speech Cor., Central Washington Coll. of Educ. Box 56, Central Washington Col. of Educ., Ellensburg, Wash.

(A) BULLEN, ADALINE, B.A. (Univ. Denver) 1918, M.A. (ibid) 1921. Dir. of Speech Clin.; Instr. in Speech Science, Pathology, Univ. of Denver. 315 Franklins St., Denver, Colo.

(F) BUNCH, CORDIA C., B.A. (Iowa S. T. Coll.) 1916, M.A. (Iowa Univ.) 1917, Ph.D. (ibid) 1920. Dept. of Speech Re-educ., Sch. of Speech, Northwestern Univ., Evanston, Ill.

(A) BURDIN, L. GRAY, S.B. (Butler Univ.) 1939, A.M. (Northwestern Univ.) 1939. Asst. Prof. in Speech at Butler Univ. 839 W. 44th St., Indianapolis, Ind.

(F) BUSSE, ALVIN CLAYTON, A.B. (Macalester) 1920, A.M. (N. Y. Univ.) 1924. Assoc. Prof. of Speech, N. Y. Univ., University Hts., New York City.

(A) BUXTON, ROSE (Mrs.), B.A. (New York) 1936. Dir. of Speech Clin., Williamsburg Housing Project, Brooklyn. 110 Clara St., Brooklyn, N. Y.

(A) BYCRAFT, HELEN BOWLES, B.L. (Northwestern) 1925. T. of Speech Cor., Chicago Pub. Sch. 4620 Ellis Ave., Chicago, Ill.

(A) CABLE, W. ARTHUR, Ph.B. (Univ. of Chicago) 1920, A.B. (Manchester) 1920, A.M. (Iowa) 1925. Dir. of Speech Clin. and Prof. of Speech, Univ. of Arizona. 524 E. Fourth St., Tuscon, Ariz.

(A) CALVERT, RAYMOND R., M.D. (Ind.) 1927. Physician to Purdue Speech Clin., 314 N. 6th St., Lafayette, Ind.

(A) CALVERT, WALLACE A., A.B. (Gettysburg) 1934. Speech Clin., Penna. State Coll. 46 S. Lime St., Lancaster, Pa.

(F) CAMP, PAULINE BEATRICE, Pub. Sch. Dir. of Child Guidance and Special Educ., Frost Woods, Madison, Wis.

(F) CARHART, RAYMOND THEODORE, A.B. (Dakota Wesleyan) 1932, A.M. (Northwestern Univ.) 1934, Ph.D. (ibid) 1936. Asst. Prof. of Speech Re-educ., School of Speech, Northwestern Univ., Evanston, Ill.

(F) CARLSON, EARL REINHOLD, A.B. (Minn.) 1921, S.M. (ibid) 1922, M.D. (Yale) 1931. Dir. Dept. of Rehabilitation of Motor Disorders, N. Y. Neurological Inst.; Dir., Sch. for Corrective Motor Educ., E. Hampton, N. Y., and Pompano, Fla. Lago del Mare, E. Hampton, L. I., New York.

(A) CARLSON, HELEN JANE, B.S. (Univ. of Minn.) 1939. T. of Speech Cor., Austin Pub. Sch. 209 W. Allegheny, Austin, Minn.

(A) CARLSON, SADIE MARIE, B.S. (Univ. of Minn.) 1940. T. of Speech Cor., Minneapolis Pub. Sch. 1900 Park Ave., Minneapolis, Minn.

(F) CARR, ANNA M., A.B. (Cornell) 1904, A.M. (Iowa) 1926. Dir. of Speech Clin. and T. of Speech, State Teachers' Coll., Milwaukee, Wis.

(A) CARRELL, JAMES A., A.B. (Neb. Wesleyan) 1927, A.M. (Northwestern) 1929, Ph.D. (ibid) 1936. Dir. of Speech Clin., Univ. of Wash., Seattle, Wash.

(A) CARTER, ELTON STEWART, B.A. (Univ. of Maine) 1941. Graduate Ass't Speech and Reading Clin., Ind. State Teachers Coll., Terre Haute, Ind. W. W. Parsons Hall, Ind. S. T. Coll., Terre Haute, Ind.

(A) CASEBOLT, JESSIE D., A.B. (S. F. State Coll.) 1935. Asst. Prof. of Speech, Drama, and Speech Imp., S. F. State Coll. 671 The Alameda, Berkeley, Calif.

(A) CASEY, MARY HELENA, B.L.I. (Emerson) 1925. Pub. Sch. T. of Oral Reading. 46 June St., Lowell, Mass.

(A) CASS, MARCELLA GRAY (Mrs. Donald L. Cass), A.B. (Iowa) 1937, A.M. (ibid) 1940. Apt. 298, 3333 Grand Ave., Des Moines, Iowa.

(A) CASS, MARION THERESSA, A.B. (Univ. Nebraska) 1927, A.M. (T. Coll., Columbia) 1932. State Sup. in Educ. of Handicapped Children, State Office of Pub. Instr., 401 Centennial Bldg., Springfield, Ill. Apt. 207, 631 S. 4th St., Springfield, Ill.

(A) CASWELL, ELIZABETH (Mrs. W. Elvis Bosley).

(A) CAUGHRON, MAXINE NEVINS, A.B. (Washburn Coll.) 1933. Sup. in Speech Cor. at Inst. of Logopedics, Univ. of Wichita. 201 N. Rutan, Wichita, Kansas.

(A) CHADSEY, RUTH MURIEL, A.B. (Emerson Coll.) 1941. T. of Speech Cor., Brockton Pub. Sch. 11 Armory St., Springfield, Mass.

(F) CHAPIN, ALICE C., A.B. (Univ. Penn.) 1916, A.M. (S. Calif) 1923. Sup., Speech Cor. Section, Los Angeles City Sch.; Instr. Ext. Div., Univ. of Calif. 610 N. Kenmore Ave., Los Angeles, Calif.

(A) CHAPMAN, MYFANWY ELIZABETH (Mrs. Kirt M. Chapman), S.B. (Minn.) 1937. Pub. Sch. T. of Speech Cor. 5344 Ewing Ave. S., Minneapolis, Minn.

(A) CHRISTMAN, JOSEPHINE, B.A. (Wichita Univ.) 1938. Instr. Speech Cor., Institute of Logopedics, Wichita Univ. 1227 N. Topeka, Wichita, Kansas.

(A) CLANCY, JOHN N., Ph.B. (Univ. Notre Dame) 1921, A.M. (Mich.) 1937. Dir., Shady Trails Nat. Speech Imp. Camp; Admittance Officer and Clinician, Univ. of Mich. Speech Clinic, Ann Arbor, Mich.

(A) CLAPP, JEAN CHRISTINE (Mrs. Douglas W. Vernon).

(A) CLARK, ELEANOR MILWARD (Mrs. Lintner Clark), S.B. (Northwestern) 1936. Dir. of Speech Clin. at James Whitcomb Riley Hosp., Speech Therapist, Cerebral Palsy Project, Ind. State Dept. of Pub. Welfare. 1401 N. Pa., Indianapolis, Ind.

(A) CLARK, RUTH MILLBURN (Mrs.), A.B. (Univ. Utah) 1921, A.M. (ibid) 1935. Pub. Sch. T. of Speech Cor. 227 S. 13 East, Salt Lake City, Utah.

(A) CLAWSON, LILY MAE, A.B. (Univ. Wichita) 1940. Research Asst., Institute of Logopedics, Univ. of Wichita, Wichita, Kan. 1452 N. Lorraine, Wichita, Kansas.

(A) CLEMONS, ALAN, B., LL.B. (Univ. of Saskatchewan) 1929, M.A. (Iowa Univ.) 1939. Private Practice. Nauvoo, Ala.

(A) CLEMONS, ELAINE SLAUGHTER (Mrs.), A.B. (Howard Coll.) 1939. Private Practice. 522 W. Belden, Chicago, Ill.

(A) COBLENTZ, IRVING, B.S. (Penn. State) 1938. Clinician, Speech Clinic, Pennsylvania State College. 532 W. College Ave., State College, Pa.

(A) COCHRAN, DANA E., A.B. (Mich. State) 1917. T. Speech Cor., Chicago Pub. Sch. 6140 Kimbark Ave., Chicago, Ill.

(A) COCHRAN, MARGARET ANN, B.S. (Univ. of Minn.) 1940. Grad. Asst., Dept. of Speech Cor., Univ. of Minn. 1629 6th St. S. E., Minneapolis, Minn.

(A) COCHRAN, VALMA DERINGTON (Mrs. Fred Cochran, Jr.), A.B. (Wichita) 1937. Instr. in Corrective Speech. 1501 N. Waco, Wichita, Kansas.

(A) COMPTON, MARY E., B.A. (Univ. of Texas) 1931. T. of Speech, San Angelo High Sch., San Angelo, Texas. Post 1 E., Ave D, San Angelo, Texas.

(A) CORTEZ, EDMUND ARTHUR, B.A. (Taylor Univ.) 1922, M.A. (Columbia) 1926, Ed.M. (Harvard) 1927, B.D. (Asbury Theological Sem.) 1925. Dir. of Speech Clin., Asst. Prof. of Pub. Speaking and Radio, Univ. of New Hampshire. Dover Rd., Durham, N. H.

(F) COTTON, JACK CHILTON, A.B. (Maryville) 1929, M.Sc. (Ohio State) 1930, Ph.D. (ibid) 1936. Dir. Speech Clin. Laboratories, Western Wash. Coll. of Educ. 1537 James St., Bellingham, Wash.

(A) CRAIG, WILLIAM C., A.B. (Coll. of Wooster) 1929, M.A. (Northwestern) 1932. Chair. Speech Dept., Capital Univ., Columbus, Ohio. 218 S. Remington Rd., Columbus, Ohio.

(A) CROSS, HILDRETH MARIE, A.B. (Asbury Coll.) 1922, A.M. (Mich.) 1927, Ph.D. (Iowa) 1933. Assoc. Prof. of Educ. and Pscyhol., Asbury Coll., Wilmore, Kentucky.

(A) CURTIS, JAMES FREDERICK, B.A. (Iowa T. Coll.) 1935, M.A. (Iowa Univ.). Research Asst. in Speech Pathology, Iowa Univ. Rm. E. 14, East Hall, Iowa City, Iowa.

(A) DAMON, KENNETH F., A.B. (Wis.) 1922, A.M. (T. Coll., Columbia) 1927, Ph.D. (Columbia) 1933. Asst. Prof. of Public Speaking, City Coll. 17 Lexington Ave., New York City.

(A) DAMON, RUTH AIKMAN (Mrs.), A.B. (Kent State) 1921, A.M. (Northwestern) 1923. Asst. Prof. of Speech, Russell Sage College. Russell Sage Coll., Troy, N. Y.

(A) DAVIS, ANNETTA CAROLINE, A.B. (Wichita Univ.) 1938. Instr. in Clin., Wichita Univ., Flo Brown Mem. Lab., Wichita, Kan. 1017 Litchfield St., Wichita, Kansas.

(F) DAVIS, DOROTHY MAY (Mrs. C. Tuthill).

(A) DAVIS, LEOTA MAUDEANE, B.A. (Univ. of Okla.) 1938, M.A. (Univ. of Wis.). Grad. Asst., Dept. of Speech and Speech Clin., Purdue Univ. 136 State, W. Lafayette, Ind.

(A) DAVIS, LOUISE (Mrs. W. W. Davison).

(A) DAVISON, LOUISE DAVIS (Mrs. W. W. Davison), A.B. (Worthen) 1907. Clinician, Jr. League Sch. Speech Cor., Dir. Davison Sch. of Speech Cor. 1780 N. Decatur Rd., Atlanta, Ga.

(A) DAWES, ROBERT GATES, A.B. (Swarthmore Coll.) 1929, A.M. (Columbia) 1932, Ed.D. (Temple Univ.) 1937. Dir. of Sch. of Dramatic Art, Ohio Univ., Athens, Ohio.

(A) DE FOREST, EDGAR L., B.S. Ed. (Boston Univ.) 1940. T. at Hill-Young Sch. of Speech. 2728 Ellendale Place, Los Angeles, Calif.

(A) DEIGH, MAURICE, S.B. (Franklin & Marshall Coll.) 1936. Asst. in Psychology Clin., Univ. of Southern Cal., Private Practice. 942 W. 34th St., Los Angeles, Calif.

(A) DENNISON, WILLIAM. Dir. of Speech Clin., Dennison School of Speech Correction. 543 Jarvis St., Toronto, Ontario.

(A) DESFOSSES, BEATRICE. Dir. of Speech Clin., Finch Jr. Coll., N. Y. 157 E. 72nd St., New York, N. Y.

(A) DEVILBISS, ORA BEATRICE, B.S. (Univ. of Mo.) 1938, M.A. (ibid) 1940. Asst. Dir. of Speech Clin., Univ. of Mo. 331 Switzler Hall, Univ. of Mo., Columbia, Mo. 2 Watson Place, Columbia, Mo.

(A) DIAMOND, MATTHEW, B.A. (New York) 1939, M.A. (ibid) 1940. Dir. of Speech Clin., The Educational Alliance, 197 East Broadway, New York, N. Y.

(F) DICK, ARTHUR, CAP., M.C., D.D.S. (Georgetown) 1931, M.D. (ibid) 1936. 305 Old Post Office Bldg., Pittsburgh, Pa.

(A) DIEMER, MARY G., S.B. (Drake Univ.) 1930. Pub. Sch. Speech Therapist. P. O. Box 146, H. P. Station, Des Moines, Iowa.

(A) DILLER, GENEVIEVE MANN (Mrs.), B.S. (Millersville State Teachers Coll.) 1935, M.Ed. (Penn. State) 1940. T. Pub. Sch. of Speech Cor. 535 West Orange St., Lancaster, Penn.

(A) DORSETT, LOIS HERTLEIN, (Mrs. E. L. Dorsett), B.S. (Coll. of Emporia) 1938. Inst. Institute of Logopedics, Univ. of Wichita, Kansas. Private Practice, 1751 Fairmount, Wichita, Kansas. 5008 E. Central, Wichita, Kansas.

(A) DOURIS, ELIZABETH FOOTE (Mrs. Patrick J. Douris), A.B. (Hunter), A.M. (Fordham). Co-chairman English and Speech Dept., New Utrecht H. S., Utrecht. Hotel Bossert, Brooklyn, N. Y.

(A) DOW, CLYDE WALTON, B.L.I. (Emerson) 1931, S.M. (Mass. State Coll.) 1937. Instr. in Pub. Speaking, Mass. State Coll. 116 Montague Rd., N. Amherst, Mass.

(A) DRUSHAL, H. GARBER, A.B. (Ashland Coll.) 1935, M.A. (Ohio State) 1938. Clinician, Speech Clinic, Children's Hospital; Asst. Prof. of Speech, Capital Univ., Columbus, Ohio. 541½ S. Drexel Ave., Columbus, Ohio.

(A) DUFFEY, WILLIAM RICHARD, A.B. (Boston) 1915, A.M. (Marquette) 1936. 826 N. 15th St., Milwaukee, Wis.

(A) DUKE, MARCELLA LALLY, (Mrs.), A.B. (Loyola Univ.) 1936. T. Speech Cor., Chicago Pub. Sch., Board of Ed., Cor. Speech Dept., Chicago, Ill. 2607 Glenlake Ave., Chicago, Ill.

(A) ECKELMANN, DOROTHY ANNE, B.S. in Ed. (S. E. Mo. State Teachers Coll.) 1929, A.M. (Missouri Univ.) 1935. Sup. of Speech Improvement Program, Cape Girardeau Pub. Sch. 1225 Cousin St., Cape Girardeau, Mo.

(A) ECKHART, MARGARET VIRGINIA, A.S. Ed. (Kent S. Univ.) 1939. T. of Speech Cor., Rochester, Minn., Pub. Sch. 627 Glenmount Ave., Akron, Ohio.

(A) EGER, MARYAN EARL (Mrs.), A.B. (Univ. of Wichita) 1938. 5311 Dover Rd., North Olmsted, Ohio.

(A) EIKENHOUT, BETTE, B.S. (Northwestern) 1940. Practicing Speech Pathologist, 214–215 Metz Bldg., Grand Rapids, Mich. 448 Ardmore St. S. E., Grand Rapids, Mich.

(A) EISENSON, JON, BS. S. (Columbia), M.A. (ibid) 1930, Ph.D. (Columbia) 1935. T. of Speech Cor., Brooklyn Coll. Bedford Ave. and Ave. H, New York City.

(A) ELLENBERGER, MARTHA V., A.B. (Pittsburgh) 1925, A.M. (ibid) 1933. Pub. Sch. T. of Speech Cor., 551 Cypress Ave., Johnstown, Pa.

(A) ELLIOTT, LUCY A. Raleigh Apts., 3664 Washington St., St. Louis, Mo.

(A) ERVIN, JEAN CONYERS, B.A. (Converse Coll.) 1930. T., N.J. Sch. for the Deaf, West Trenton, N. J. 517 Lenoir Rd., Morganton, N. C.

(A) ESPAILLAT, GRACE RUTHERFORD (Mrs.). T. Speech Corr., Pub. Schools, District of Columbia. The Chastleton, 16th and R St. N.W., Washington, D. C.

(F) ESTABROOK, EUDORA PORTER, A.B. (Mich. State Nor. Coll.) 1929. Dir. of Speech Cor., Bd. of Educ. 511 Ethel Ave. S. E., Grand Rapids, Mich.

(F) EVANS, MARSEE FRED, A.B. (Cornell Coll.) 1915, A.M. (ibid) 1917, B.D. (Drew) 1924, Ph.D. (Iowa) 1932. Prof. of Speech, Birmingham-Southern Coll., 1521 Eighth Ave., W., Birmingham, Ala.

(A) EWELL, ALICE MARIE, B.A. (Smith Coll.) 1938, M.A. (Columbia) 1940. Clinic Assistant, Psychological Clinic, Purdue Univ., 136 State St., West Lafayette, Ind.

(F) FAGAN, HELEN ROSE, S.B. (Washington Univ.) 1933, A.M. (Iowa) 1937. Asst. Dir. of Speech Clin., Central Inst. for the Deaf and Washington Univ. Coll. 818 S. Kingshighway, St. Louis, Mo.

(F) FAGAN, LEO BERNARD, A.B. (Creighton) 1925, A.M. (Iowa) 1927, Ph.D. (ibid) 1929. Psychologist and Speech Pathologist, St. Louis Psychiatric Child Guidance Clin. and Assoc. Prof. of Educ. Psychol., St. Louis Univ. 15 N. Grand Blvd., St. Louis, Mo.

(A) FAISON, MARTHA H., S.B. (T. Coll., Columbia) 1919, A.M. (ibid) 1920. T. of Speech and Speech Cor., Lochland Sch., Geneva, N. Y.

(A) FARRELL, ELEANOR AGNES, S.B. (N. Y. State T. Coll.) 1934. Pub. Sch. Sup. of Speech Imp., Hotel Chelsea, W. 23rd St., New York City.

(A) FIELDS, VICTOR A., S.B. (C. C. N. Y.) 1926, A.M. (Columbia) 1930. Dir. of Speech Clin. and Instr. in Speech Cor., Main Center, City Coll., 139th St. and Convent Ave., New York City.

(A) FINGER, VERNA, S.B. (Northwestern Univ.) 1931, S.M. (ibid) 1932. Instr. of Speech Re-educ., Northwestern Univ. 31 E. Division, Fond du Lac, Wis.

(A) FINGEROTH, BLANCHE SILVERMAN, B.A. (Hunter Coll.) 1936, M.A. (Columbia Univ.) 1938. T. of Speech Cor., Elem. and Jr. High Sch., New York City. 155 E. 91st St., New York City.

(A) FISHEL, MAMIE VAUGHN, S.B. (Meridian) 1913, Ph.M. (Wis.) 1935. Pub. Sch. Sup. of Speech Cor. 16 Marshall Pl., Janesville, Wis.

(A) FISK, JEANNE BISHOP (Mrs. Robert S. Fisk), A.B. (Rockford) 1935, A.M. (Columbia) 1936. Pub. Sch. T. of Speech Cor., Minneapolis, Minn. 509 W. 121st St., New York, N. Y.

(F) FITZ-GIBBON, JOHN J., F.A.C.D. (Am. Coll. of Dentists) 1928. Chief of Dental Staff, Skinner Memorial Clin., Holyoke Hosp., Consultant and Palate Prosthetist, Joseph Samuels Dental Clin., R. I. Hosp. Private Practice, 56 Suffolk St., Holyoke, Mass.

(A) FOLEY, MARY BERNADETTE, Ph.B. (Loyola Univ.) 1934. T. Speech Cor., Chicago Pub. Sch. 2044 Roosevelt Rd., Chicago, Ill.

(A) FRASIER, JEANNETTE, M.A. (Univ. of Iowa) 1940. Dir. of Speech Cor., Clayton-St. Louis Pub. Sch. Apt. 202, 7350 Lindell, St. Louis, Mo.

(A) FREBURG, MILDRED (Mrs. James Berry).

(F) FROESCHELS, EMIL, M.D. (Vienna Univ.) 1907. 133 East 58th St., New York, N. Y.

(A) GAINES, FRANCES PERLOWSKI (Mrs.), A.B. (Wis.) 1926, M.S.S. (Smith) 1927. Priv. Practice, 30 N. Michigan Ave., Dir. of Speech Clinic, Children's Memorial Hosp., Chicago, and Rush Medical Coll., Chicago. 623 Arlington Place, Chicago, Ill.

(A) GALLANT, MARJORI L., B.A. (Hunter Coll.) 1937, M.A. (Iowa) 1939. Asst. Speech Clin., Purdue Univ. 121 Wiggins St., West Lafayette, Ind.

(F) GARDNER, WARREN HENRY, A.B. (Harvard) 1918, Ph.D. (Iowa) 1936. Consultant in Hearing and Vision, Oregon State Board of Health, Oregon Bldg., Portland, Ore.

(A) GARRISON, E. GERALDINE, A.B. (Okla. State) 1925, A.M. (Columbia) 1938. Dir. of Speech Activities. 917 N. 8th St., Neodesha, Kansas.

(A) GEESON, EDNA LABUHN (Mrs. Edward Geeson), S.B. (Wayne) 1928, A.M. (ibid) 1933. T. of Speech Cor., Detroit Pub. Sch. 420 Navahoe Ave., Detroit, Mich.

(A) GENS, GEORGE WILLIAM, A.B. (Univ. of Mich.) 1938, M.A. (ibid) 1939. Clinical Asst., Speech Clin., Univ. Mich. 314 Packard St., Ann Arbor, Mich.

(F) GIFFORD, MABEL FARRINGTON (Mrs.). Chief, Bureau of Cor. of Speech Defects, Calif. State Dept. of Educ.; Dir. of Speech Clin. and Instr. in Speech Cor., Univ. of Calif. and San Francisco State T. Coll. 609 Sutter St., San Francisco, Calif.

(A) GILBERT, EDNA E., B.L. (Northwestern) 1926, M.S. in Speech (ibid) 1930. Dir. of Speech Clin., Instr. of Interp. and Speech Cor., State T. Coll., Minot, N. Dakota. 7706 Eastlake Ter., Chicago, Ill.

(A) GILLETT, ANNA MAE, A.B. (Univ. Wichita) 1938. Sup. in Speech Clin. 1751 N. Waco, Wichita, Kansas.

(A) GILMAN, WILBUR ELWYN, A.B. (Cornell) 1923, Ph.D. (ibid) 1937. Assoc. Prof. of Speech, Univ. of Mo. 512 Steward Road, Columbia, Mo.

(A) GLASSNER, PHILIP J., B. C. S. (Baltimore Coll. of Commerce) 1932. Speech Correctionist, Johns Hopkins Hosp., Psychiatric Clin.; Dir. of Private Clin. 740 Reservoir St., Baltimore Md.

(A) GLASPEY, ESTHER (Mrs. Leland E. Ogdahl).

(A) GLAUBER, I. PETER, M.D. (Univ. of Bellevue Hosp. Med. Coll.) 1925. 111 East 60th St., New York City.

(A) GOLDEN, ALFRED L., B.A. (Univ. Pittsburgh) 1931, M.A. (ibid) 1938. Asst. Dir., Speech Clin., Duquesne Univ., Pittsburgh, Pa. 5528 Baywood St., Pittsburgh, Pa.

(A) GOODFRIEND, DAVID JOSEPH, D.D.S. (Univ. of Penn.) 1919. Researcher, Univ. of Penn., Fellow, Sec. of Otolaryngology, American Med. Assoc. 901 Medical Arts Bldg., Philadelphia, Pa.

(A) GOODWIN, STELLA ULRICH (Mrs. Clyde Goodwin), A.B. (Wayne Univ.) 1936. Pub. Sch. T. of Speech Cor. 4404 Somerset, Detroit, Mich.

(A) GORDON, EVELYNE FRANCES (Mrs. Frederick C. Gordon), S.B. (Columbia) 1936, A.M. (ibid) 1937. Director of Speech Clinic, Long Beach High School, Long Beach, L. I., New York.

(A) GOTTLOBER, ABRAHAM BER., A.B. (Adelbert Coll., Western Reserve Univ.) 1933, A.M. (Graduate Coll., W. R. U.) 1935, Ph.D. (Iowa) 1937. Dir. Cleveland Sp. Cor. Clinic, Visitant to City Hospital. 3608 Euclid Ave., Cleveland, Ohio.

(A) GRAVES, SADIE LOU MAELLA, A.B. (Univ. of Wichita) 1934. Instr., Institute of Logopedics, Univ. Wichita. 835 Wabash Ave., Wichita, Kansas.

(A) GRAY, MARCELLA ELIZABETH (Mrs. Donald L. Cass).

(A) GREEN, EVELYN M., B.A. (Cornell) 1931, M.A. (Iowa Univ.) 1940. T. of Speech Cor., Green Bay, Wis. 523 Howe St., Green Bay, Wis.

(A) GREEN, HARRIET C., B.A. (Brooklyn Coll.) 1937, M.A. (ibid) 1939. T. of Speech Cor., Indiana Univ. Alpha Hall, Indiana Univ. 8777 20th Ave., Brooklyn, New York.

(F) GREENE, GUY SHEPARD, A.B. (Hobart) 1920, Ph.D. (Cornell) 1926. Dir. of Speech Clin. and Prof. of English and Head of the Dept. of Eng. and Speech, Iowa State Coll., Ames, Iowa.

(A) GREENOUGH, JEANETTE B. (Mrs. Jeanette Yedinack).

(A) GRIFFITH, FRANCIS, A.B. (St. John's Univ., Brooklyn) 1927, A.M. (ibid) 1929. Chairman, Eng. Dept., James Madison High Sch. 1751 E. 29th St., Brooklyn, N. Y.

(A) GROSS, HILDRED AUGUSTA, A.B. (Mich.) 1931, A.M. (ibid) 1934. Sup. of Speech Cor., Detroit Pub. Sch. 899 Virginia Pk., Detroit, Mich.

(A) GUDRIDGE, HAZEL LUNDSTEIN (Mrs. E. M. Gudridge), A.B. (Macalester) 1922. Pub. Sch. T. of Speech Cor. 189 Amherst St., St. Paul, Minn.

(A) HAHN, EUGENE F., A.B. (Univ. Calif.) 1929, A.M. (Univ. S. Calif.) 1933, Ph.D. (ibid) 1940. First Asst. Supervisor of Language Educ., Detroit Pub. Schs.; Asst. Prof. of Speech Educ., Dir. of Speech Clin., Wayne Univ., Detroit, Mich.

(F) HALL, MARGARET ELIZABETH, A.B. (Wis.) 1927, S.M. (Univ. Chicago) 1931, Ph.D. (Iowa) 1938. Psychologist and Speech Pathologist, Bureau of Child Study, Chicago Board of Educ. 228 N. LaSalle St., Chicago, Ill.

(A) HALSTED, ELIZABETH MARGARET. Pub. Sch. T. of Speech Cor. 2600 Van Ness Ave., San Francisco, Calif.

(A) HAMBLIN, MARION JUNE, B.L.I. (Emerson) 1935. Pub. Sch. T. Speech Cor. 10 Clisbee Sq., Revere, Mass.

(A) HAMILTON, RUTH GREENWOOD, Ed.B. (R. I. Coll. Ed.) 1931. Pub. Sch. T. Hope Valley, R. I.

(A) HANNING, LUELLA MARIE. T. in Duluth Pub. Sch., Adm. Bldg., Duluth, Minn.

(A) HANSEN, BURRELL F., B.S. (Utah State Agr. Coll.) 1940. Asst. Prof. of Speech, Purdue Univ. 209 E. Lutz Ave., West Lafayette, Ind.

(A) HARKINS, CLOYD S., A.B. (Univ. of Penna.), D.D.S. (ibid). Consultant to Penn. State Coll. Speech Clin., Staff, Philipsburg State Hospital, Philipsburg, Pa. Fulton Bldg., Osceola Mills, Pa.

(A) HAUT, LILLIAN, B.S. (Hunter Coll.) 1933, M.A. (T. C., Columbia) 1935. Special T. of Speech Improvement, Speech Dept., Board of Educ., 110 Livingston St., Brooklyn, N. Y. 105 W. 72nd St., New York.

(F) HAWK, SARA STINCHFIELD (Mrs. Charles Lyle Hawk), A.B. (Pittsburgh) 1914, A.M. (Iowa) 1920, Ph.D. (Wis.) 1922. Psychologist, Pasadena Polytech. Elem. and Jr. H. S.; Dir. of Speech Clin., Orthopedic Hosp. and Child Guidance Clin. of Los Angeles and Pasadena; Lect. on Psychol. and Speech Pathol., Univ. of S. Calif. 1577 N. Gower St., Hollywood, Calif.

(A) HEDGES, THADINE, A.B. (Wichita Univ.) 1939. Supervisor in Speech Clin., Institute of Logopedics. 1811 N. Hillside, Wichita, Kansas.

(F) HELTMAN, HARRY JOSEPH, S.B. (Syracuse) 1910, A.M. (American) 1920. Chairman, Sch. of Speech & Dramatic Art and Prof. of Speech, Syracuse Univ., Syracuse, N. Y.

(A) HENDERSON, ELLEN CLARK (Mrs.), A.B. (Utah) 1911, A.M. (T. Coll., Columbia) 1925. Ed. of Speech Mag., 2507 Southport, Chicago, Ill. 629 No. Latrobe Ave., Austin, Station F, Chicago, Ill.

(F) HENDRIKSON, ERNEST H., A.B. (Ore.) 1925, A.M. (Iowa) 1929, Ph.D. (ibid) 1932. Dir. of Speech Cor. and Assoc. Prof. of Speech, Iowa State T. Coll., Cedar Falls, Iowa.

(A) HERMAN, IRENE M., B.S. (Fordham) 1932. T. Speech Cor., Yonkers Pub. Schools. 75 Bruce Ave., Yonkers, N. Y.

(A) HERTLEIN, LOIS ELLEN (Mrs. E. L. Dorsett, Jr.).

(A) HIAR, IRMA THERESSA, S.B. (Mich. State Normal) 1934. P. O. Box 93, Roseville, Mich.

(A) HIBBITT, GEORGE WHITING, A.B. and S.B. in Ed. (Ohio State) 1920, A.M. (ibid) 1922. Assoc. in English, Columbia Univ., N. Y. Hamilton Hall, Columbia Univ., New York City, N. Y.

(A) HIGGINS, ROGER WOLCOTT, A.B. (Clark Univ.) 1923, A.M. (Harvard) 1931. Speech Therapist and Instr. in English and Pub. Speaking, Phillips Academy, Andover, Mass.

(A) HILL, HARRIS, A.B. (Western Mich.). Indiana Univ., 202 Alpha Hall, Bloomington, Ind. 728½ E. 3rd St., Bloomington, Ind.

(A) DE HIRSCH, KATHERINE, Equivalent of M.A. (Hosp. for Nervous Dis., London) 1937. Manhattan Ear, Nose, Throat Clin. 891 Park Ave., New York City.

(A) HISER, VELMA BISSELL, L.B. (Northwestern) 1926, A.M. (Iowa) 1938. Dir. of Speech Clin., Grinnell College. Hotel Monroe, Grinnell, Iowa.

(A) HOFFMAN, PHYLLIS MOORHEAD, B.S. (T. Coll., Columbia) 1932, M.A. (ibid) 1934. T. of Speech, James Madison High Sch., Hotel St. James, 109 W. 45th St., New York, N. Y. James Madison H. Sch., Bedford Ave. and Quentin Rd., Brooklyn, New York.

(A) HOLMES, FRANK LINCOLN, A.B. (Univ. Minn.) 1921, M.A. (Univ. Wis.) 1925, Ph.D. (ibid) 1929. Dir. of Speech Clin., Ill. State Normal Univ., Normal Ave., Normal, Ill.

(A) HOLWAY, DORA EDYTHE (Mrs.), S.B. (Wayne Univ.) 1931. T. of Speech Cor. at Detroit Public Schools. 14015 Rutland, Detroit, Mich.

(A) HOMONOFF, BEATRICE, A.B. (Emerson) 1938. Instr. in Speech Cor. in Brockton, Mass., Pub. Sch.; Speech Pathologist of the Brockton Habit Clinic. 97 Hazelton St., Mattapan, Mass.

(A) HOUSE, ENOD SCOVILLE (Mrs.), A.B. (Iowa) 1930, A.M. (ibid) 1936. Pub. Sch. T. of Speech Cor. 6336 7th Ave., Kenosha, Wis.

(A) HOWARD, KATHRYN LOUISA, A.B. (Mt. Holyoke) 1936. Instr. in Speech Clin., San Jose State Coll. 85 S. 6th St., San Jose, Calif.

(A) HOWE, AGNES SMART (Mrs.), B.L.I. (Emerson) 1925. Dir. of Psychological Testing and Speech Cor., Children's Service Bureau; Speech T., State Dept. of Educ.; The School of Speech, 136 6th Ave. N., St. Petersburg, Fla.

(A) HUBER, MARY WEHE, B.S. (Univ. of Wis.) 1939, M.A. (ibid) 1940. Speech Pathologist, Children's Mem. Hosp., Montreal, Quebec, Canada. 720 N. Milwaukee St., Milwaukee, Wis.

(A) HULL, HENRIETTA C., Sc.B. (Minn.) 1936, M.S. (ibid) 1939. Sup. Speech Cor. Pub. Sch., Bloomington, Ind. 547 S. Lincoln, Bloomington, Ind.

(A) HULTZEN, LEE S., A.B. (Cornell) 1920, Ph.D. (ibid) 1932. Dir. of Speech Clin. and Assoc. Prof. of Speech, Univ. of Missouri. 309 Switzler Hall, Columbia, Mo.

(A) HUNT, JAMES FRANKLIN, S.B. (Univ. Penna.) 1931, S.M. (Mass. State Coll.) 1935. Dir. of Speech Clin. of Holyoke, Mass., Child Guidance Clin.; Instr. in Spoken English at Smith Coll. and of Pub. Speaking at Amherst Coll. 21 Taylor St., Amherst, Mass.

(A) HUNZIKER, MINNA ELIZABETH, A.B. (Western State T. Coll.) 1929, A.M. (Northwestern) 1940. Speech Cor. T., Pub. High Schools. 49 Union Ave. N. E., Grand Rapids, Mich.

(A) HURD, MELBA FRANCES, A.B. (Minn.) 1927, A.M. (ibid) 1931. Instr. in Speech, Univ. of Minn. 819 Essex St. S. E., Minneapolis, Minn.

(A) HUYCK, E. MARY, A.B. (Univ. S. Dak.) 1934, A.M. (Univ. Denver) 1937. Asst. Prof. in Speech, Univ. of Ariz. 1348 E. Speedway, Tuscon, Ariz.

(A) HYDE, RUTH STUTENROTH (Mrs.), A.B. (Univ. S. Dak.) 1923, A.M. (Iowa) 1937. 306 Curtis, Hutchinson, Kansas.

(A) INNESS, MARJORY A. (Mrs. W. L. Kempster).

(A) IRVING, JAMES, B.S. (Northwestern) 1936, M.A. (ibid) 1940. T. of Speech Re-ed., Maine Twnshp. High Sch., Des Plaines, Ill. 655 Graceland, Des Plaines, Ill.

(A) ISRAEL, EVA, A.B. (Brown Univ.) 1929. T., Speech Cor., Dramatics and Public Speaking in the Senior High School, Woonsocket, R. I. 563 S. Main St., Woonsocket, R. I.

(A) JACOB, MARY JANE, B.S. (Wichita Univ.) 1939. Instr., Cor. Speech, Institute of Logopedics. 220 Parkwood Lane, Wichita, Kansas.

(A) JELLINEK, AUGUSTA, Ph.D. (Univ. of Vienna) 1923. 15 W. 96th St., New York City.

(A) JENKINS, RUSSELL L., B.S. (Manchester Coll.) 1933, Ph.M. (Wis. Univ.) 1940. T. Speech, Psychology, Isaac Elston H. S., Michigan City, Ind. 440 E. 8th St., Michigan City, Ind.

(A) JEROME, ELDON K., S.B. (Northwestern) 1932, A.M. (ibid) 1936. Asst. Dir. of Speech Clin., Purdue Univ., Lafayette, Ind.

(A) JOHNSON, T. EARLE, A.B. (L. S. U.) 1926, M.A. (Univ. of Wis.) 1931. Dir. of Speech Clin., Univ. of Alabama. University, Ala.

(F) JOHNSON, WENDELL A. L., A.B. (Iowa) 1928, A.M. (ibid) 1929, Ph.D. (ibid) 1931. Assoc. Prof. of Psychology and Speech Pathol., East Hall, Univ. of Iowa, Iowa City, Iowa.

(A) JONES, AMY DESMOND, A.B. (Univ. Wichita) 1937. Instr. in Speech Cor. at The Cedars, Ross, Calif.

(A) JONES, MAMIE JOSEPHINE, A.B. (Huntington) 1936, A.M. (Northwestern) 1937. Georgia State T. Coll., Statesboro, Ga.

(A) JONES, MARGARET, B.Sc. (Univ. of Washington) 1931, M.A. (Northwestern) 1941. T. of Speech Cor., Alex Hamilton Jr. H. Sch., Seattle, Wash. 2012 43rd St., N., Seattle, Wash.

(A) JONES, MARTHA ELIZABETH, Ed.B. (T. Coll. of Conn.) 1937. Pub. Sch. T. of Speech Cor. 282 C Sigourney St., Hartford, Conn.

(A) JOSLIN, NORA M., S.B. (Western Reserve) 1934, A.M. (Columbia) 1938. Pub. Sch. T. of Speech Cor. and Lip Reading, Cleveland, Ohio. 3155 Rocky River Drive, Cleveland, Ohio.

(A) KALTENBORN, ARTHUR LEWIS, JR., A.B. (Coll. of Wooster) 1937. Instr. in Speech, Coll. of Wooster. Coll. of Wooster, Wooster, Ohio.

(A) KANE, LILLIAN, S.B. (N. Y. Univ.) 1929, A.M. (Columbia Univ.) 1932. Dir. of Speech Clin. and Pub. Sch. T. of Speech Cor., Montclair, N. J. 679 E. 23rd St., Paterson, N. J.

(F) KANTNER, CLAUDE E., A.B. (Albion) 1928, A.M. (Wis.) 1930, Ph.D. (ibid) 1933. Dir. of Speech Clin. and Assoc. Prof. of Speech, La. State Univ., University, La.

(A) KEASTER, JACQUELINE ALCINDA. Dir. of Speech Cor. 1001 Harrison, Davenport, Iowa.

(A) KELLENBERGER, JEANNE, A.B. (Iowa) 1933, A.M. (ibid) 1937. 730 E. High St., Davenport, Iowa.

(F) KELLY, GEORGE A., A.B. (Park Coll.) 1926, A.M. (Kansas) 1928, B.Ed. (Edinburgh) 1930, Ph.D. (Iowa) 1931. Dir. Psychol. Clin., Ft. Hays, Kansas, State Coll. 710 Park Ave., Hays, Kansas.

(A) KELLEY, KATHERINE BOREN, B.S. (E. C. S. T. C.) 1932, M.A. (Okla. Univ.) 1941. Dir. of Speech Clin., W. J. Bryan Sch. for Crippled Children. 2357 W. 17th St., Oklahoma City, Okla.

(A) KEMPSTER, MARJORY INNESS, A.B. (Iowa) 1937, A.M. (ibid) 1938. 2010 W. 5th Ave., Gary, Indiana.

(F) KENNEDY, LOU, A.B. (Iowa) 1911, A.M. (Stanford) 1922, Ph.D. (Wis.) 1930. Dir. of Speech Clin. and Assoc. Prof. of Speech, Brooklyn Coll., Bedford Ave. and Ave. H, Brooklyn, N. Y.

(A) KENNEDY, MARION ROSALIE, A.B. (Our Lady of the Elms Coll.) 1937. T. of Speech Cor., Holyoke Public Schools. 30 Myrtle Ave., Holyoke, Mass.

(F) KENYON, ELMER LAWTON, A.B. (Harvard) 1890, M.D. (Rush) 1896. Private Practice, 185 N. Wabash Ave., Chicago, Ill.

(A) KIMMELL, MELBA LOUISE, S.B. (Northwestern) 1936, A.M. (Iowa) 1937. 610-A Medical Arts Bldg., Oklahoma City, Okla.

(A) KIRBY, A. FLORENCE, B.S. (Clark Univ.) 1935, M.A. (Boston Univ.) 1937. Prof. of Speech and Literature, State Teachers College, Lowell, Mass. 52 Livingston Ave., Lowell, Mass.

(A) KIRK, KATHRYN. Speech Examiner and Demonstration Tr. of Speech Cor. in Elem. Sch. 181 Kirkland Rd., Rochester, N. Y.

(A) KLUEVER, LOIS H. COBB (Mrs. H. C. Kluever), A.B. (Iowa) 1927, A.M. (ibid) 1931. Clin. Asst. in Speech and Otolaryngology, Univ. of Iowa, Iowa City. 221 N. 18th St., Ft. Dodge, Iowa.

(A) KNIGHT, BILLIE BRANDT, S.B. (Northwestern) 1937. Private Practice, 4314 Rossmoyne, Houston, Texas.

(A) KNIGHT, HELEN SULLIVAN (Mrs. Paul D. Knight), A.B. (Arkansas Coll.) 1931, A.M. (Northwestern) 1936. Instr. in Speech Re-educ., Northwestern Univ., Evanston, Ill.

(A) KNIGHT, PAUL D., S.B. (Ill.) 1926, A.M. (Northwestern) 1940. Private Practice in Speech Disorders, 55 E. Washington St., Chicago, Ill.

(A) KNUDSON, THELMA A., S.B. (Northwestern) 1928, A.M. (Iowa) 1937. Dir. Speech Clinic and Instr. in Speech, John Adams H. S., South Bend, Indiana.

(F) KOEPP-BAKER, HERBERT, A.B. (Mich.) 1926, S.M. (Penn. State) 1930, Ph.D. (Iowa) 1938. Dir. of Speech Clin., Pa. State Coll., State College, Pa.

(F) KOPP, GEORGE ADAMS, S.B. (Monmouth) 1926, S.M. (Wis.) 1930, Ph.D. (ibid) 1933. Assoc. Prof. of Speech Educ. and Dir. of Speech Laboratories, Teachers Coll., Columbia Univ. 156 Ames Ave., Leonia, N. J.

(A) KOSH, ZELDA HORNER (Mrs. David A. Kosh), A.B. (Adelphi Coll.) 1933, A.M. (T. C., Columbia) 1934. T. of Speech at Girls High Sch. 72 Orange St., Brooklyn, N. Y.

(A) KRAFT, MARIE BERGIN (Mrs.), S.B. (Ithaca Coll.) 1932, A.M. (Columbia Univ.) 1935. Instr. of Speech Cor. and Speech Educ., Extension Div., Brown Univ. 97 Hilltop Ave., Providence, R. I.

(A) KRAMER, MAGDALENE, A.B. (Trinity Coll., Wash., D. C.) 1920, A.M. (Columbia) 1930, Ph.D. (ibid) 1936. Assoc. Prof. of Speech, T. Coll., Columbia Univ., New York City.

(A) KRATOVIL, IRMA FREMONT, B.A. (Northwestern Univ.) 1940. T. of Speech Cor., Chicago Pub. Sch. 42 E. Chicago Ave., Chicago, Ill.

(A) KRIEGMAN, LOIS SAMSON (Mrs.), A.B. (Ill. Univ.) 1940, A.M. (Iowa) 1941. Inst. for Juvenile Research, 907 S. Wolcott, Chicago, Ill. 3819 Wrightwood, Chicago, Ill.

(A) LARR, ALFRED L., A.B. (Ind. S. T. Coll.) 1939. Dir. of Speech Cor., Vigo County Sch. 51 Rose Ave., Terre Haute, Ind.

(A) LARSEN, LAILE LOUISE, B.S. (Columbia) 1939. Sup. of Ind. Univ. Traveling Speech and Hearing Clin. 202 Alpha Hall, Bloomington, Ind.

(A) LASSE, LEROY, Ph.D. (Univ. of Iowa) 1937. Head, Dept. of Speech and Dir. Speech Clin., Univ. of Nebraska, Lincoln, Nebr.

(A) LASSLO, MADGE, B.A. (Hunter) 1935, M.A. (ibid) 1936. 2124 31st St., Astoria, Long Island, New York.

(A) SISTER MARY LAURENCITA, B.V.M., B.A. (Lores Coll.) 1926, M.A. (Marquette Univ.) 1933, B.E. (Columbia) 1927. Dir. of Speech Clin., Prof. of Speech, Drama, Mundelein Coll. 6363 Sheridan Rd., Chicago, Ill.

(A) LEIBOVITZ, THEODORE, B.A. (Mich. Univ.) 1940, M.A. (ibid) 1941. Clinician, Univ. of Mich. Speech Clin., Ann Arbor, Mich. 19226 Haase, Detroit, Mich.

(A) LENCIONE, RUTH M., B.A. (Northwestern) 1938, M.A. (Chicago T. Coll.) 1940. T. of Speech Cor., Chicago. 7601 Clyde Ave., Chicago, Ill.

(A) LETZTER, MARGARET CATHERINE, A.B. (Northwestern Univ.) 1915, A.M. (ibid) 1930, Ph.D. (ibid) 1937. Dir. of Speech Clin. and Assoc. Prof. of Speech, San Jose State Coll. 85 S. 6th St., San Jose, Calif.

(A) LEVBARG, JOHN JACOB, M.D. (L. I. Med. Coll.) 1913. Dir., Speech Clin., Harlem Eye & Ear Hosp.; Instr. in Voice Science and Speech Pathol., New York Bd. of Educ. Diplomate of Otolaryngology. 55 W. 42nd St., New York City.

(A) LEVY, ELEANOR SELMA, B.A. (Emerson Coll.) 1940. Dir. of Speech Clinic, Mass. Division of Mental Hygiene. 179 Rawson Road, Brookline, Mass.

(A) LEVY, RAYE CHARLOTTE. Pub. Sch. T. of Speech Cor. 5507 Stanton Ave., Pittsburgh, Pa.

(A) LEWIS, FLORENCE STILES (Mrs.), B.L.I. (Emerson) 1937. Speech Diagnostician and Therapist, State Dept. Health, Hartford, Conn. Private Practice, 33 Woodridge Drive, Stamford, Conn.

(A) LILJEBERG, NAOMI, S.B. (Minn.) 1939. Pub. Sch. T. of Speech Cor. 1924 E. River Terrace, Minneapolis, Minn.

(A) LILJEGREN, ALICE VICTORIA, A.B. (Miluauhu S. Norm.) 1911. Sup. of Speech Cor., Omaha Pub. Sch. 605 City Hall, Omaha, Neb.

(A) LILLYWHITE, HEROLD, B.A. (Utah State Coll.) 1932, M.A. (Univ. Minn.) 1938. Dir., Div. of Speech and Speech Cor. Clin., State Teachers Coll., Moorhead, Minn. 604 11th St., Moorhead, Minn.

(A) LINKOW, IRVING, A.B. (Univ. Denver) 1937, A.M. (ibid) 1939. Instr. in Speech, Dept. of English and Speech, Iowa State Coll., Ames, Iowa.

(A) LINSCOTT, ANNE M., B.L.I. (Emerson) 1940. T. Speech Cor., Swampscott Jr. High Sch. Private Practice, 78 Greenwood Ave., Swampscott, Mass.

(A) LOMBARD, ELSIE ANDERSON (Mrs. James S. Lombard), A.B. (Macalester) 1923. Pub. Sch. T. of Speech Cor. 258 Macalester Ave., St. Paul, Minn.

(A) LUNDSTEN, HAZEL VIVIAN (Mrs. F. M. Gudridge).

(A) MCCALMON, GEORGE ALEXANDER, A.B. (Carnegie Inst. of Technology) 1934, A.M. (Columbia) 1938. Prof. of Speech, Geneva College, Beaver Falls, Pa.

(A) MCCAUSLAND, MARGARET, B.S. (Univ. of Penna.) 1939. T. Speech Improvement, Philadelphia Pub. Sch. 6139 Christian St., Philadelphia, Pa.

(A) MCCLELLAND, VERA, Ph.B. (Univ. Chicago) 1923. Kindergarten T., Hotel Carter, Cleveland, Ohio.

(A) MCCONECHY, KATHARINE MARIA. Instr. in Dept. of Speech and Expression, Regina Coll., Univ. of Sask. 3031 Rae St., Regina, Sask., Canada.

(A) MCCORD, EDNA MORRIS (Mrs.), A.B. (Hunter) 1903. Pub. Sch. T. of Speech Imp. 825 W. 187th St., New York City.

(A) MCCORKLE, DOROTHY ELIZABETH, B.S. (Northwestern) 1940. 409 North West St., Tipton, Ind.

(A) McDONALD, EUGENE THOMAS, B.S. (Calif. S. T. Coll.) 1938, M. Ed. (Penna. S. Coll.) 1940. Grad. Asst in Speech Clin., Penna. S. Coll. 31 Penna. Ave., California, Penn.

(A) MACDOUGALL, ANNE DORIS, B.L.I. (Emerson) 1936. T. of English and Drama in High Sch., Norwich, New York.

(F) McDOWELL, ELIZABETH DICKINSON (Mrs. Sam B. McDowell), A.B., S.B. (Judson) 1914, A.M. (Columbia) 1920, Ph.D. (ibid) 1928. Lahaska, Bucks County, Pa.

(F) McGINNIS, MILDRED A., S.B. (Washington Univ.) 1933, A.M. (ibid) 1939. Sup. T. of Speech Development and Cor., Univ. Coll., Washington Univ.; Dir. of Speech Clin., Central Inst. for the Deaf. 818 S. Kingshighway, St. Louis, Mo.

(A) MACLEARIE, ELIZABETH C., A.B. (Ball State T. Coll.) 1925, A.M. (Wis.) 1935. Pub. Sch. T. of Speech Cor., Cleveland, Ohio. 2366 Noble Road, Cleveland Heights, Ohio.

(A) McMURRAY, OCEA, A.B. (Coll. of Pacific) 1926. Co. Sup. of Speech Cor. and Speech Imp., Shasta Co., Calif. Box 956, Redding, Calif.

(A) MADDOX, JAMES S., A.B. (W. Va. Univ.) 1935, A.M. (Iowa) 1937. Speech Clin. Staff and Instr. in Speech, Purdue Univ., Lafayette, Ind.

(A) MAHER, ELIZABETH J., B.A. (Coll. of New Rochelle) 1931, M.A. (Fordham Univ.) 1940. T. of Speech Impt., N. Y. C. Schools. 454 Greene Ave., Brooklyn, New York.

(A) MAJOR, CHARLES C., A.B. (Carthage Coll.) 1933, M.S. (Purdue) 1940. Dir. of Speech Clin. and Instr. Speech and English, Ill. Wesleyan Univ. 1009 E. Jefferson, Bloomington, Ill.

(A) MANIFOLD, AGNES D. (Mrs.), A.B. (St. Joseph's Coll. for Women) 1926. T. of Speech, Flushing High Sch. 35–17 146th St., Flushing, N. Y.

(A) MANSON, FRANCES (Mrs. Spencer F. Brown).

(A) MANUCIA, CHARLES FRANK, B.S. (N. Y. Univ.) 1940, M.A. (ibid) 1941. T. of Speech Cor., Institute for Crippled and Disabled, 400 First Ave., New York City. 760 67th St., Brooklyn, N. Y.

(A) MARCERO, FRANCIS ALOYSIUS, A.B. (Mich.) 1938. T. of Speech Cor. Placement, Detroit. 1445 Bishop Rd., Grosse Pointe, Mich.

(A) MARTIN, SUZANNE ELIZABETH, A.M. (Columbia) 1933, Ed.D. (ibid) 1939. Brooklyn Coll., New York Univ. 71–11 Seminole Ave., Forest Hills, Long Island, N. Y.

(A) MASE, DARREL JAY, B.S. (Emporia State T. Coll.) 1928, A.M. (Mich.) 1932. Dir. Speech Clin. and Asst. Prof. of Speech, Trenton State T. Coll., N. J. 233 Maple Ave., Trenton, N. J.

(A) MASLAND, MARY WOOTTON (Mrs.), S.B. (McGill Univ.) 1935, A.M. (Oberlin Coll.) 1939. Private Practice, 222 So. 39th St., Philadelphia, Pa.

(F) MASON, MARIE KATHERINE, A.I. (Canisius) 1924, A.M. (Ohio State) 1932, Ph.D. in Speech (ibid) 1941. Asst. Dir. of Speech Clin. and Asst. Prof. of Speech and Visual Hearing, Ohio State Univ. 60 E. Norwich Ave., Columbus, Ohio.

(A) MAYER, M. GLADYS, S.B. (Wayne) 1932, S.M. (Univ. Detroit) 1936. Pub. Sch. T. of Speech Cor. 16847 Baylis, Detroit, Mich.

(A) METRAUX, RUTH WATT (Mrs. Guy S. Metraux), A.B. (Marshall Coll.) 1934, M.A. (Univ. Mich.) 1941. Clinical Asst., Speech Clin., Univ. of Mich. 612 Catherine, Ann Arbor, Mich.

(A) MIANO, KATE PUPELLA (Mrs.). Pub. Sch. T. 517 80th St., Brooklyn, N. Y.

(A) MICHLINSKI, FLORENCE EVA, A.B. (Mich.) 1939, M.A. (ibid) 1940. T., Speech Cor., Louisville Pub. Schools. 124 W. Ormsby, Louisville, Ky.

(F) MILISEN, ROBERT LLOYD, A.B. (Simpson) 1931, A.M. (Iowa) 1933, Ph.D. (Iowa) 1937. Indiana Univ., Bloomington, Ind.

(A) MILLER, ELVENA, A.B. (Wash.) 1917, A.M. (ibid) 1936. Pub. Sch. Sup. of Speech. 7330 Fifteenth Ave., N. E., Seattle, Wash.

(A) MILLS, ALICE W. (Mrs.), S.B. (Ore.) 1905, A.M. (Iowa) 1923. Chairman, Speech Dept., Assoc. Prof., Holyoke Coll., South Hadley, Mass.

(A) MILWARD, ELEANOR JANE (Mrs. Lintner Clark).

(A) MOHRDIECK, ROSE MARIE, A.B. (MacMurray Coll.) 1930, M.A. (Northwestern) 1941. T. of Speech, Naperville H. Sch. 162 So. Charlotte St., Lombard, Ill.

(A) MOORE, PAUL G., A.B. (W. Virginia Univ.) 1929, M.A. (Northwestern) 1930. Instr., Speech Re-educ., Sch. of Speech, Northwestern Univ. Northwestern Univ. Sch. of Speech, Evanston, Ill.

(A) MOORE, ROBERTA, A.B. (Fla. State Coll.) 1932, A.M. (Iowa) 1939. Pub. Sch. T. of Speech Cor., S. Beach Sch., Miami Beach, Fla. 4220 Prairie Ave., Miami Beach, Fla.

(F). MOORE, WILBUR ERWIN, A.B. (Mo. Wesleyan) 1926, A.M. (Iowa) 1932, Ph.D. (ibid) 1936. Head, Dept. of Speech, Central State Teachers, Mich. 812 S. College, Mt. Pleasant, Mich.

(A) MOORHEAD, PHYLLIS LOGAN (Mrs. Hofmann).

(A) MOREN, J. ADELAIDE, S.B. (Minn.) 1938, S.M. (ibid) 1940. Asst. Dir. of Speech Clin., Univ. Hosp., 1354 Arcade St., St. Paul, Minn.

(F) MORLEY, ALONZO JOHN, A.B. (Brigham Young) 1925, A.M. (ibid) 1931, Ph.D. (Iowa) 1935. Assoc. Prof. of Speech, 180 College Bldg., Brigham Young Univ., Provo, Utah.

(A) MORLEY, D. E., A.B. (Mich. State) 1933, M.A. (Mich. Univ.) 1934. Dir. of Speech Clin., Calif. State Teachers' Coll. 321 4th St., California, Penna.

(F) MORRIS, D. W., A.B. (Park Coll.) 1928, A.M. (Maine) 1934, Ph.D. (Iowa) 1936. Dir. of Speech and Reading Clin.; Prof. and Chair., Dept. of Speech, Ind. State T. Coll. 2730 Wilson St., Terre Haute, Ind.

(A) MORRIS, JOHN ANDREW, B.A. (Phillips Univ.) 1929, M.A. (Iowa) 1939, M.A. (Phillips) 1930, B.D. (Yale) 1932. Associate Prof. of Speech, Phillips Univ. 2110 E. Broadway, Enid, Okla.

(F) MOSER, HENRY MICHAEL, A.B. (Ohio State) 1924, A.M. (Mich.) 1927, Ph.D. (Iowa) 1936. Asst. Prof. of Speech Cor., Univ. of Mich. 1024 Baldwin Ave., Ann Arbor, Mich.

(A) MOSES, ELBERT RAYMOND, JR., A.B. (Univ. Pittsburgh) 1932, S.M. (Mich.) 1934, Ph.D. (ibid) 1936. Speech Clinic, Asst. Prof. of Speech, Ohio State Univ. 4499 Rosemont Pl., Columbus, Ohio.

(A) MOUSER, WILLIAM S., A.B. (Wayne Univ.) 1935, A.M. (ibid) 1939. Pub. Sch. T. of Speech Cor., Detroit. 14845 Ashton Rd., Detroit, Mich.

(A) MUELLER, HAZEL DU CLES (Mrs. F. W. Mueller, Jr.), S.B. (Northwestern) 1930, S.M. (ibid) 1935. Speech Counselor, Kenilworth and Wilmette Schs. 1045 Maple Ave., Evanston, Ill.

(A) MURPHY, HELEN MARIE, Ph.B. (De Paul Univ.) 1941. T. of Speech Cor., Chicago Pub. Sch. 7146 Yates Ave., Chicago, Ill.

(F) MURRAY, ELWOOD, A.B. (Hastings) 1922, A.M. (Iowa) 1924, Ph.D. (ibid) 1931. Chair. Dept. of Speech and Dramatic Arts, Univ. of Denver. 2391 S. Clayton St., Denver, Colo.

(A) NAGY, HELLEN MARIE, A.B. (Hunter Col.) 1937. Dir. of Speech Clin. and Prof. of Remedial Speech, N. Y. Institute for the Blind. 999 Pelham Parkway, New York, N. Y.

(F) NATHANSON, YALE, Sc.B. (Univ. Penn.) 1923, A.M. (ibid) 1924, Ph.D. (ibid) 1930. Asst. Prof., Temple Univ.; Dir. of Speech Clin., St. Christopher's Hosp. for Children; Chief Psychol., Philadelphia Psychiatric Hosp. Private Practice, Central Medical Bldg., 18th and Chestnut Sts., Philadelphia, Pa.

(A) NAYLOR, ALICE ROSINA. Private Practice, 243 State St., Schenectady, N. Y. 1302 Belmont Ave., Schenectady, N. Y.

(A) NEELY, BETTY JANE, B.E. (Wichita Univ.) 1938. Instr. in Speech Cor., Wichita Univ. 145 N. Belmont, Wichita, Kansas.

(A) NELSON, SEVERNIA ELAINE, A.B. (Univ. Ill.) 1918, A.M. (ibid) 1923, Ph.D. (Wis.) 1938. Dir. of Speech Clin. and Asst. Prof. of Speech, Univ. of Ill. 715 Vermount St., Urbana, Ill.

(F) NEMOY, ELIZABETH MCGINLEY (Mrs.), A.B. (Temple) 1928, A.M. (Penn.) 1931. Pub. Sch. T. of Speech Cor. The Fairfax, 43rd and Locust, Philadelphia, Pa.

(A) NEVINS, MAXINE BERNICE (Mrs. Q. M. Caughron).

(F) NEWHART, HORACE, A.B. (Dartmouth) 1895, M.D. (Mich.) 1898. Prof. of Otolaryngology, Univ. of Minn. 527 Medical Arts Bldg., Minneapolis, Minn.

(A) NORCROSS, MABEL CLARE (Mrs. Edward P. Norcross), Ph.B. (Univ. Chicago) 1928, A.M. (Columbia Univ.) 1930. T. of Speech Cor., Elem. Sch. Private Practice, 900 Roslyn Lane, Highland Park, Ill.

(A) NORRIS, MARION A. (Mrs. Hugh H. Steele).

(A) NYSTROM, CLARENCE L., A.B. (Greenville) 1925, A.M. (Iowa) 1929, Ph.D. (ibid) 1932. Dir. of Speech Clin. and Assoc. Prof. of Speech, Wheaton Coll. 708 Irving Ave., Wheaton, Ill.

(A) OBERMAN, C. ESCO, A.B. (Iowa) 1926, A.M. (ibid) 1932, Ph.D. (ibid) 1938. Cap., Air Corps, Classification Officer, Gulf Coast Air Corps Training Center, Randolph Field, Texas.

(A) O'Connor, Katherine Hawkins, B.Sc. (Wayne Univ.) 1941. Private Practice, 2520 Glynn Court, Detroit, Mich.

(A) Offett, Morton Franklin, A.B. (De Pauw Univ.) 1938, A.M. (Ind. St. Teachs. Coll.) 1941. T. of Speech Cor., St. Louis Pub. Sch. 4412 W. Belle Place, St. Louis, Mo.

(A) Ogdahl, Esther Glaspey (Mrs. Leland E. Ogdahl), A.B. (Iowa) 1932, A.M. (ibid) 1933. Pub. Sch. T. of Speech Cor., Lecturer in Extension at Butler Univ. 150 N. Meridian St., Indianapolis, Ind.

(A) Oglivie, Mardel, A.B. (Cornell Univ.) 1931, A.M. (ibid) 1932, Ph.D. (T. C., Columbia) 1941. T. of Speech, Fredonia State Normal Sch., Fredonia, N. Y.

(A) Oliver, Dorothy, S.B. (Northwestern) 1935, S.M. (Univ. of Minn.) 1939. Dir., Speech Cor., Sioux City Pub. Sch., Sioux City, Iowa.

(A) Osborn, Courtney Dale, A.B. (Univ. of Wichita) 1936, A.M. (ibid) 1939. Clinician, Speech Clinic, Univ. of Mich., 1007 E. Huron St., Ann Arbor, Mich.

(A) Osgood, Rudolf, S.B. (Harvard) 1924, M.S. (Rush Med. Sch.) 1932. Dir. of Speech Clin., Phillips Academy, Andover, Mass. Consultant, Speech Clin., Harvard Coll. 59 Greenlawn St., Fall River, Mass.

(A) Palkot, Edward John, B.A. (Carnegie Tech.) 1935, M.A. (Columbia) 1940. Dir. of Speech Clin. and T. of Speech, Garden City Schools. 810 Chateau St., Pittsburgh, Pa.

(F) Palmer, Martin Franklin, A.B. (Olivet) 1927, A.M. (Mich.) 1931, Sc.D. (ibid) 1937. Dir. Institute of Logopedics; Prof. and Chairman, Dept. of Logopedics, Univ. of Wichita. 1320 N. Yale Wichita, Kansas.

(A) Pankaskie, Margaret, A.B. (Ft. Hays, Kansas, State Coll.) 1937, M.A. (ibid) 1938, Ph.D. (Iowa) 1941. Sup. in Sight Saving and Remedial Reading, Speech and Reading Clinic, Indiana State Teachers Coll., Terre Haute, Ind. 1908 So. 7th St., Terre Haute, Ind.

(F) Pardoe, T. Earl, A.B. (Brigham Young) 1924, A.M. (S. Calif.) 1931, Ph.D. (La. State) 1936. Prof. of Speech, Brigham Young Univ. 160 S. 1st E. St., Provo, Utah.

(A) Partridge, Lyman M., B.A. (Young Univ.) 1935, M.A. (Columbia) 1937. Asst. Speech Clin., Univ. of Mich. 315 Packard St., Ann Arbor, Mich.

(A) Pauls, Miriam D., A.B. (Harris T. Coll.) 1932, A.M. (Wayne Univ.) 1939. Coll. Inst. and Sup. T. of Oral Deaf, Horace Rackham Sch. of Special Ed., Mich. S. Norm. Coll., Ypsilanti, Mich.

(A) Pedrey, Charles Paul, M.A. (Iowa) 1934. T. of Speech Cor., Greenville High Sch., Miss. 1203 Main, Greenville, Miss.

(A) Peterson, Gordon E., A.B. (DePauw Univ.) 1935, M.A. (Louisiana State Univ.) 1937, Ph.D. (ibid) 1939. Dir. of Speech Clin. and Prof. of Speech, Ball State T. Coll. 1408 West Main St., Muncie, Ind.

(A) PETTAS, MARY, B.A. (Queens Coll.) 1941, Fellow in Dept. of Speech, Queens Coll., Flushing, N. Y. Astoria, 45–18 30th Ave., New York City.

(A) PFAFF, PAUL LEWIS, A.B. (Stanford) 1929, A.M. (Univ. S. Calif.) 1935. Dir. of Speech Clin. and Asst. Prof. of Speech, San Diego State Coll., San Diego, Calif.

(A) PIERCE, L. ADELINE, A.B. (Albion Coll.) 1930, M.A. (Columbia) 1931, Ph.D. (Mich.) 1940. Speech Consultant and Therapist, Cleveland Guidance Center and Assn. for Crippled and Disabled, Cleveland, Ohio.

(A) PITTELMAN, RUTH KAY, S.B. (Wis.) 1939. Asst. Dir. of Speech Clin., Purdue University, West Lafayette, Indiana.

(A) PITTENGER, KATHERINE LYDIA, S.B. in Ed. (Texas) 1937, A.M. in Speech (Iowa) 1939. Private Practice in Speech Cor. 822 E. 37th St., Austin, Texas.

(A) PLUMLEY, HARRIET ELIZABETH, B.O.E. (Syracuse) 1927. T. of Speech Cor., Niagara Falls Public Schools. 416 Pine Ave., Niagara Falls, N. Y.

(A) PLUMMER, ROBERT NEWCOMB, B.S. (Okla A. & M.) 1935, M.A. (George Peabody Coll.) 1936, Ph.D. (Louisiana S. Univ.) 1940. Dir. of Speech Clin., Ariz. St. Coll., Tempe, Ariz. 1127 Ash Ave., Tempe, Ariz.

(A) POST, RHESSA ROUTH, A.B. (Ind. S. T. Coll.) 1935, A.M. (ibid) 1936. 402½ Lincolnway, E., Mishawaka, Ind.

(A) POWERS, DAVID GUY, A.M. (Columbia) 1934, Ed.D. (ibid) 1938. Instr. in Speech, Queens Coll. 71-11 112th St., Forest Hills, Long Island, N. Y.

(A) POWERS, MARION BEATRICE, A.B. (Iowa) 1928, A.M. (ibid) 1929. Asst. in Speech Cor., Madison Pub. Sch.; Instr. in Educ. Methods, Univ. of Wis. 1 Langdon St., Madison, Wis.

(F) PRESSMAN, JOEL JAY, M.D. (Harvard) 1925, Sc.M. (Univ. Penn.) 1931. Chief of Bronchoscopic Service, Cedars of Lebanon Hosp. 1917 Wilshire Blvd., Los Angeles, Calif.

(A) PRONOVOST, WILBERT, B.A. (Maine) 1935, M.A. (Iowa) 1937, Ph.D. (ibid) 1939. Instr. of Speech, Queens Coll., Flushing N. Y. 40-41 190th St., Flushing, N. Y.

(A) RANDALL, ESTHER FRANCES, S.B. (Minn.) 1936. Pub. Sch. T. of Speech Cor. 2 W. Lake St., Chisholm, Minn.

(F) RAUBICHECK, LETITIA ELWOOD (Mrs. Charles W. Raubicheck), A.B. (New Rochelle) 1914, A.M. (Columbia) 1928, Ph.D. (N. Y. Univ.) 1934. Dir. of Speech Imp. in N. Y. City Schools; Lecturer in Educ., N. Y. Univ. 85 Mercer Ave., Hartsdale, N. Y.

(A) READ, LILLIAN FAIRCHILD (Mrs. Raymond R. Read). Pub. Sch. T. of Speech Cor. 201 W. 52nd St., Minneapolis, Minn.

(A) REDISCH, HERMAN S., B.S.S. (C. C. N. Y.) 1934. Asst., Speech Clin., City Coll. New York. 169 Ave. C., New York City.

(A) REED, NORMA DREIFKE (Mrs. Max R. Reed), B.S. (Wash. Univ.) 1938. Instr. Speech Cor. and Co-Dir. of Southern Inst. for Speech Corr., 2659 De Soto St., New Orleans, La.

(A) REID, LOREN DUDLEY, A.B. (Grinnell) 1927, A.M. (Iowa) 1930, Ph.D. (ibid) 1932. Assoc. Prof. of Speech and Ed., Syracuse Univ., Syracuse, N. Y.

(A) REIGART, JOHN F., A.B. (Dickinson) 1888, Ph.D. (Columbia) 1916. (Retired.) Prof. of Psychol. and Edu., T. Coll., Columbia Univ.; Prin., N. Y. City Pub. Sch. 31 Euclid Ave., Yonkers, N. Y.

(A) RICE, DELIGHT. Pub. Sch. Sup. of Speech Cor., Berkeley, Calif.

(A) RICHARDSON, VIRGINIA D., A.L.I. (Emerson Coll.) 1941. Private Practice at Univ. of North Carolina, Chapel Hill, N. C. 1512 Carr St., Raleigh, N. C.

(A) RIEHL, CASSIE L., A.B. (Western S. T. Coll., Mich.) 1939. Sup. Speech Cor., Vincennes Pub. Sch. 404 N. 4th St., Vincennes, Ind.

(A) RITZMAN, CARL H., B.Ed. (Superior St. Tchrs. Coll.) 1934, M.A. (Iowa) 1935, Ph.D. (ibid) 1941. Dir. of Speech Clin.; Asst. Prof. of Speech Pathology, Univ. of Oklahoma, Norman, Okla. 524 W. Boyd, Norman, Okla.

(F) ROBBINS, SAMUEL DOWSE, A.B. (Harvard) 1911, A.M. (ibid) 1919. Speech Corrector, Mass. General Hosp. and Mass. Div. of Mental Hygiene; Prof. of Psychol., Emerson Coll.; Managing Trustee, Institute for Speech Correction, Inc. 419 Boylston St., Boston, Mass.

(A) ROBERTS, MAUMEE, A.B. (Howard Coll.) 1935. Pub. Sch. T. of Speech Cor. and Lip Reading. 1024 S. 23rd St., Birmingham, Ala.

(A) ROE, VIVIAN IRENE, A.B. (Iowa) 1936. Sup. of Speech Cor., Pub. Sch. Fort Wayne, Ind. 1725 Florida Drive, Fort Wayne, Ind.

(A) ROSSIGNOL, LOIS J., B.A. (Hunter Coll.) 1938, M.A. (Columbia) 1940. Asst., Children's Speech Clin., Queens Coll., Flushing, New York. 599 West 190th St., New York City.

(A) ROTTER, JULIAN B., A.B. (Brooklyn) 1937, A.M. (Iowa) 1938, Ph.D. (Indiana) 1941. Institutional Psychologist, Norwich State Hospital, Norwich, Conn.

(A) ROUTH, RHESSA ALMEDIA (Mrs. Rhessa Post).

(A) ROWE, MARGARET LOUISE, A.B. (Evansville Coll.) 1932, A.M. (Northwestern) 1939. Dir. of Speech Cor. in Pub. Schools. 213 Dreier Blvd., Evansville, Ind.

(A) RUGEN, BETTY RAE, B.A. (Iowa) 1941. T. of Speech Cor., S. Dak. Sch. for Deaf, Sioux Falls, S. Dak. 1124 Pine St., Glenview, Ill.

(A) RUKGABER, EDITH MAE, B.L. (Northwestern) 1927. Dir. of Speech Ed., Akron Pub. Sch. 240 Sand Run Rd., Akron, Ohio.

(A) RUNION, HOWARD L., A.B. (Mich.) 1931, M.A. (ibid) 1933, Ph.D. (ibid) 1936. Chair. Speech Dept.; Dir. of Speech Clin., Univ. of Maine. 1 Riverdale, Orono, Maine.

(F) RUSSELL, G. OSCAR, A.B. (B. Y. U.) 1915, A.M. (Columbia) 1918, Ph.D. (ibid) 1927. Dir. Utah State Research Lab. and Clin.; Supt. Utah Sch. for the Deaf and Blind. 20th and Monroe, Ogden, Utah.

(A) RUSSELL, LELIA M., A.B. (Wash) 1927, A.M. (T. Coll., Columbia) 1932. Pub. Sch. T. of Speech Cor. 809 South I St., Tacoma, Wash.

(A) RUTHERFORD, BERNEICE R. (Mrs. S. J. Rutherford), S.B. (Minn.) 1934, S.M. (ibid) 1937. Pub. Sch. T. of Speech Cor. 5223 Vincent Ave., S., Minneapolis, Minn.

(A) RUTHERFORD, KATHERINE ANN, A.B. (Arkansas) 1931, M.A. (Northwestern) 1940. Instr. Dept. of Speech, Miami Univ., Oxford, Ohio.

(A) RUTHERFORD, VIRGINIA, A.B. (Arkansas) 1935, A.M. (Northwestern) 1938. Pub. Sch. T. of Speech Re-edu. 7525 W. Becher St., W. Allis, Wis.

(A) RYAN, BESSIE, Ph.B. (Loyola Univ.) 1935. T. of Speech Cor., Chicago Pub. Sch. 1221 W. Garfield Blvd., Chicago, Ill.

(A) RYAN, EARL H., A.B. (Univ. Pittsburgh) 1927, A.M. (Columbia) 1928. Instr. in Pub. Speaking at City Coll. 17 Lexington Ave., New York City.

(A) SAGERT, LOUIS ALBERT, A.B. (Wartburg Coll.) 1927, A.M. (Iowa) 1931. Area Supervisor of Iowa Remedial Education Survey. 571 Jefferson St., Dubuque, Iowa.

(A) SCARBROUGH, HARTWELL EUGENE, A.B. (Univ. Redlands) 1936, A.M. (Iowa) 1938, Ph.D. (ibid) 1939. Private Practice, 3875 Wilshire Blvd., Los Angeles, Calif.

(A) SCHAFITZ, ETHEL ROSLYN, A.B. (Bethany Coll.) 1939, M.A. (Iowa) 1941. 542 S. Oakland Ave., Sharon, Pa.

(A) SCHMITZ, MARY H., S.B. (Minn.) 1937. Dir. of Pub. Sch. Speech Cor., Rochester, Minn.

(A) SCHOLZ, OLIVE MARCELLA, B.A. (Milw-Downer) 1923, M.A. (Univ. of Wis.) 1935. T. of Speech Cor., Pub. Sch., Billings Pub. Sch., Billings, Mont.

(A) SCHULTZ, OLIVE DOROTHY, Ph.B. (Univ. Chicago) 1932. Pub. Sch. T. of Speech Cor. 7708 Constance, Chicago, Ill.

(F) SCOLTEN, ADRIAN H., A.B. (Wis.) 1927, M.D. (Wash. Univ., St. Louis) 1931. 201 State St., Portland, Maine.

(A) SECORD, ARTHUR, A.B. (Western State T. Coll.) 1928, A.M. (Mich.) 1932. Dir. of Speech Clin., Univ. of Manitoba (Summer) and Univ. of Mich. Ann Arbor, Mich.

(A) SEVENANS, MADELINE MARIE, A.B. (Univ. of Southern Calif.) 1931. T. of Speech, Beverly Hills Schools and Santa Barbara State College. 1816 So. Bentley Ave., West Los Angeles, Calif.

(A) SHAW, M. OCLO MILLER (Mrs. Everett W. Shaw), S.B. (Mo.) 1919, A.M. (Iowa) 1929. 15 Wright Place, South Hadley, Mass.

(A) SHINN, MARIAN LOUISE, B.S. (Western Mich. Coll.) 1941. Clinician, Speech Clin., Univ. of Minn. Box 28, Spring Lake, Mich.

(A) SHOHARA, HIDE HELEN, A.B. (Mich.) 1926, A.M. (ibid) 1927, Ph.D. (ibid) 1932. Instructor of Phonetics, Dept. of Speech and Instructor of Human Adjustment (Speech Clinic), University of Michigan, Ann Arbor, Mich.

(A) SHOVER, JAYNE, A.B. (Iowa) 1932, A.M. (ibid) 1936. Pub. Sch. Dir. of Speech Cor. and Lip Reading Instruction. 4725 Northcote, East Chicago, Ind. Supervising Clinician (summer session), Purdue Univ.

(A) SHULMAN, EDWARD E., A.B. (W. Mich. Coll. of Educ.) 1939, M.S. (Univ. of Minn.) 1940. Clinical Asst. in Psychology, Speech Clin., Univ. of Iowa. Iowa City, Iowa.

(A) SILVERMAN, S. RICHARD, A.B. (Cornell) 1933, S.M. (Washington Univ.) 1938. Registrar; Lecturer in Phonetics; Chair. of Dept. of Lip Reading, Central Inst. for the Deaf. 818 So. Kingshighway, St. Louis, Mo.

(F) SIMON, CLARENCE T., A.B. (Wittenberg) 1919, A.M. (Northwestern) 1922, Ph.D. (Iowa) 1925. Dir. of Speech Clin. and Prof. of Speech Re-educ., Asst. Dean, School of Speech, Northwestern Univ., Evanston, Ill.

(A) SIMONDS, ZULMA LUNT (Mrs.). T. Speech Cor., Arlington Public Schools. 48 Bartlett Ave., Arlington, Mass.

(A) SKALBECK, OLIVER M., A.B. (St. Olaf Coll.) 1926, A.M. (Iowa) 1938. Dir. of Speech Clin. and Instr. in Speech, S. E. Mo. State T. Coll. Cheney Hall, Cape Girardeau, Mo.

(A) SKERRETT, ESTHER CURTIS, S.B. (Wayne Univ.) 1936. Pub. Sch. T. of Speech Imp. 1250 Hubbard, Detroit, Mich.

(A) SLATTENGREN, HATTIE J. E., A.B. (Gustavus Adolphus) 1929. Pub. Sch. T. of Speech Cor., Jr. High Sch., Albert Lea, Minn.

(A) SAMSON, LOIS (Mrs. Kriegman).

(A) SMITH, BEATRICE L. Dir. of Speech Clin. for Cerebral Palsy, The Children's Center, New Haven, Conn.

(A) SMITH, FRANCIS, B.A. (Duquesne) 1930, M.A. (Catholic Univ.) 1937. Dir. of Speech Clin., Duquesne Univ. Pittsburgh, Pa.

(A) SMITH, BEATRICE L. Dir. of Speech Clin., Newington Home for Crippled Children, Newington, Conn.

(A) SMITH, GEORGE-WILLIAM, A.B. (Hamline) 1920, A.M. (Northwestern) 1938. Dir. of Speech Clin., Dir. Speech and Dramatics, Russell Sage College. 171 Second St., Troy, N. Y.

(A) SMITH, NORMAR, B.A. (Brooklyn Coll.) 1938, M.A. (ibid) 1940. T. of Speech, Educational Alliance; Edu. Dir., Jewish Hospital Speech Clinic. 4418 17th Ave., Brooklyn, N. Y.

(A) SNIDECOR, JOHN C., A.B. (Univ. Calif.) 1931, A.M. (Iowa) 1937, Ph.D. (Iowa) 1940. Santa Barbara State Coll., Santa Barbara, Calif.

(F) SOLOMON, MEYER, M.D. (Cornell) 1909. Assoc. in Nervous and Mental Diseases, Northwestern Univ. Med. Sch.; Neuro-psychiatrist to Mt. Sinai, Edgewater, Englewood and Woodlawn Hospitals. 185 N. Wabash Ave., Chicago, Ill.

(A) SONDAY, FRANCIS, A.B. (Ind. Univ.) 1938. Sup., Div. of Speech Cor. and Hearing Conservation, Richmond, Ind. 127 N. 10th, Richmond, Ind.

(A) SONKIN, ROBERT, S.B. (C. C. N. Y.) 1928, A.M. (Columbia) 1929. Tutor in Public Speaking, City College, Convent Ave. at 139th St., New York City.

(A) SOUTHER, SYLVIA GROSS, B.A. (Brooklyn Coll.) 1933, M.A. (T. C., Columbia) 1937. Tutor in Speech, Brooklyn Coll. 377 Montgomery St., Brooklyn, N. Y.

(A) SPECTOR, SOPHIA, A.B. (Hunter Coll.) 1931, A.M. (Columbia) 1938. T. of Speech Cor., Elizabeth Public Schools. 716 Garden St., Elizabeth, N. J.

(A) SPRIESTERSBACH, D. CARYL, B.E. (Winona State Teachers Coll.) 1939, M.A. (Iowa) 1940. Speech Asst., University of Iowa. Speech Clinic, Univ. of Iowa, Iowa City, Iowa.

(A) STANTON, MARJORIE NANETTE, A.B. (Friends Univ., Wichita) 1933, M.A. (Northwestern Univ.) 1940. T. of Speech Cor., Gary Pub. Sch., 801 Jackson, Gary, Indiana. 238 N. Emporia, Wichita, Kansas.

(A) STEELE, MARION NORRIS (Mrs. Hugh H. Steele), A.B. (Iowa) 1933, A.M. (ibid) 1934. Pub. Sch. T. of Speech Cor., 1009 Lincoln St., Superior, Wis.

(A) STEELE, EDITH LORRAINE, A.B. (Mich.) 1937, A.M. (ibid) 1939. T. of Speech and Speech Cor., Riley High Sch. 2105 S. Michigan St., South Bend, Ind.

(F) STEER, MACK DAVIS, S.B. (L. I. Univ.) 1930, A.M. (Iowa) 1933, Ph.D. (ibid) 1938. Dir. of Speech Clin. and Assoc. Prof. of Speech, Speech Clinic, Purdue Univ., Lafayette, Ind.

(A) STEINBERG, IDA, Bailey Hall, Private School for Retarded Children. P. O. Box A, care Bailey Hall, Katonah, New York.

(F) STINCHFIELD, SARA (Mrs. Charles Lyle Hawk).

(A) STIRES, MILMORE, B.S. (Cornell) 1930, M.A. (T. C., Columbia) 1940. T. of Speech Cor., Hempstead and Port Washington Pub. Sch., Long Island, N. Y. 63 Homan Blvd., Hempstead, N. Y.

(F) STODDARD, CLARA BEATRICE, S.B. (Wayne) 1932. Retired Pub. Sch. Sup. of Speech Cor. 3779 Maybury Grand, Detroit, Mich.

(A) STODDARD, JANE EASTMAN, S.B. (Columbia) 1936, A.M. (ibid) 1938. Supervisor of Special Education, State Department of Education. Richmond, Va.

(F) STROTHER, CHARLES R., A.B. (Univ. Wash.) 1929, A.M. (ibid) 1932, Ph.D. (Iowa) 1935. Assoc. Prof. of Speech and Psychology, Psychological and Speech Clin., Univ. of Iowa, Iowa City, Iowa.

(A) STUTENROTH, RUTH IRENE (Mrs. Ruth S. Hyde).

(A) SULLIVAN, E. MARGARET, S.B. (Minn.) 1932. Pub. Sch. T. of Speech Cor. 3220 Fremont Ave., S., Minneapolis, Minn.

(A) SULLIVAN, ELLA MARY, S.B. (Minn.) 1932. Pub. Sch. T. of Speech Cor. 3220 Fremont Ave., S., Minneapolis, Minn.

(A) SULLIVAN, HELEN BRITTON (Mrs. Paul D. Knight).

(A) SULLIVAN, MARGARET J., A.B. (Loretto Hts) 1924, A.M. (T. Coll., Columbia) 1932. Pub. Sch. T. of Speech Cor. Apt. 100, 4412 W. Lake Harriet Blvd., Minneapolis, Minn.

(A) SWEENEY, ALMA KATHRYN (Mrs.), B.A. (Iowa) 1939. Private Practice. 615 Sunset Lane, East Lansing, Mich.

(A) TAPLIN, IDA, Sup. Speech Imp., Bd. of Educ., City Hall Annex, Newark, N. J.

(A) TAYLOR, GLENN JAMES, B.Ed. (Ill. Nor.) 1935, A.B. (Ill. Nor.) 1936, A.M. (Iowa) 1937. Asst. Prof. of Speech, Westminster Coll. 210 N. Mercer, New Wilmington, Pa.

(F) TAYLOR, JANE BLISS, S.B. (Columbia) 1920, A.M. (ibid) 1937. Chairman Speech Cor. Clin. in Bronx Buildings. Hunter Coll. 251 W. 97th St., New York City.

(A) TAYLOR, RICHARD HELMAN, B.A. (Wichita Univ.) 1941. Instr., Speech Institute of Logopedics, Wichita Univ. 3932 Edgemont Pl., Wichita Univ., Wichita, Kansas.

(A) TEMPLIN, MILDRED, A.B. (Wis.) 1936, A.M. (ibid) 1937. 2202 W. National Ave., Milwaukee, Wis.

(F) THOMAS, CHARLES KENNETH, A.B. (Cornell) 1922, A.M. (ibid) 1924, Ph.D. (ibid) 1930. Dir. of Speech Clin. and Assoc. Prof. of Public Speaking, Cornell. Goldwin Smith Hall, Ithaca, N. Y.

(A) THOMAS, RUTH HAZEL, Ph.B. (Syracuse) 1911, A.M. (Columbia) 1933. Dir. of Speech Clinics in Passaic Pub. Schools. 311 Mt. Prospect Ave., Newark, N. J.

(A) THORN, KATHERINE F., A.B. (Elmira Coll.) 1930. Asst. T. of Speech, Univ. of Minn. 28 15th St., Buffalo, N. Y.

(A) TIBBITS, FRANCES BEERS, S.B. (N. Y. Univ.) 1930, A.M. (Columbia) 1933. Pub. Sch. Speech Correctionist. 311 Mt. Prospect Ave., Newark, N. J.

(F) TRAVIS, LEE EDWARD, A.B. (Iowa) 1922, A.M. (ibid) 1923, Ph.D. (ibid) 1924. Dir. of Psychol Clin. and Prof. of Psychol. and Speech Univ. of S. Calif., Los Angeles, Calif.

(A) TURNER, MARTHA PRENTICE. Speech Correctionist in office of Dr. Walter O. Klingman, 3 E. 76th St., New York, N. Y.

(A) TURNER, VIVIAN, B.A. (Iowa S. T. Coll.) 1914, M.A. (Iowa Univ.) 1934. Asst. Prof. of Speech, Kent State Univ. Kent, Ohio.

(A) TUTHILL, CURTIS E., A.B. (Macalester) 1935, A.M. (Iowa) 1936, Ph.D. (ibid) 1939. Dir. of Speech Clin., Temple Univ., Philadelphia, Pa.

(F) TUTHILL, DOROTHY DAVIS (Mrs.), A.B. (Mich.) 1933, A.M. (Iowa) 1936, Ph.D. (ibid) 1939. Speech Dept., Brooklyn College, Brooklyn, N. Y. 1931 N. 13th, Philadelphia, Pa.

(F) TWITMYER, EDWIN BURKET, Ph.B. (Lafayette) 1896, M.S. (ibid) 1898, Ph.D. (Univ. Penn.) 1902, LL.D. (Lafayette) 1933. Prof. of Psychology, Univ. of Pennsylvania. Secane, Pa.

(A) UTLEY, JEAN L., S.B. (Wash. Univ.) 1935, A.M. (Wayne Univ.) 1938. T. at S. Carolina Sch. for the Deaf, Cedar Springs, S. Car.

(A) VAN CLEVE, RUTH A., B.S. (Ind. State T. Coll.) 1938. Secretary-Clinician, Speech and Reading Clin., Ind. S. T. Coll. 505 So. 4th St., Terre Haute, Ind.

(A) VAN DUSEN, CLARENCE RAYMOND, A.B. (Indiana Univ.) 1931, A.M. (Mich.) 1932, Sc.D. (ibid) 1937. Dir. of Speech Clin. and Asst. Prof. in Speech, Mich. State Coll., E. Lansing, Mich. 1415 W. Franklin St., Elkhart, Ind.

(A) VAN HORN, MARY HELEN, B.A. (Iowa) 1933, M.A. (ibid) 1940. Dir. of Speech Clin., Charlanne Sch. for Spastic Paralysis. 1019 Oxmoor Rd., Birmingham, Ala.

(F) VAN RIPER, CHARLES, A.B. (Mich.) 1926, A.M. (ibid) 1929, Ph.D. (Iowa) 1934. Dir. of Speech Clin., Western Mich. Coll. of Ed. 5053 Nurrie Rd., Kalamazoo, Mich.

(A) VANCE, CAROLYN, B.L.I. (Emerson Coll.) 1920. Dir. of Speech Clin., Univ. of Georgia, Athens, Ga. 390 So. Lumpkin St., Athens, Ga.

(A) VENABLE, ELIZABETH BURT (Mrs.), A.B. (Denison Univ.) 1935, A.M. (Univ. Mich.) 1938. T. of Speech Cor., Louisville Pub. Sch.; T. of Speech Extension Div., Univ. of Louisville. 219 Kennedy Court, Louisville, Ky.

(A) VERGARA, ALLYS DWYER (Mrs.), A.B. (Coll. of New Rochelle) 1924, A.M. (Columbia) 1936. Dir. of Speech Clin. and Assoc. Prof. of Speech, College of New Rochelle, N. Y. 36 Laurel Place, New Rochelle, N. Y.

(A) VERNON, JEAN CLAPP (Mrs.), A.B. (DePauw Univ.) 1935. Asst. in Speech Re-educ., Northwestern Univ. 2131 Ridge Ave., Evanston, Ill.

(A) VOELKER, CHARLES H., A.B. (Ohio State) 1931, A.M. (ibid) 1933. Dir. of Speech Clin., Oklahoma A. & M. Coll., 200 Williams Hall. 160 King's Highway, R. R. 3, Stillwater, Okla.

(A) WADDLE, ELSIE LENORA, A.B. (Southwestern Coll.) 1920, A.M. (Iowa) 1934. Pub. Sch. T. of Speech Cor. 1648 S. Baltimore Ave., Tulsa, Okla.

(A) WATT, RUTH (Mrs. Guy S. Metraux).

(F) WARD, LAVILLA AMELIA. State Sup. of Speech Cor., Bur. for Handicapped Children, State Dept. of Pub. Instr., Madison, Wis.

(A) WEAVER, HERBERT BENJAMIN, A.B. (Univ. of Penn.) 1933, M.A. (ibid) 1934. Asst. Dir. of Speech Clin., Univ. of Penna. 3645 Locust St., Philadelphia, Pa.

(A) WEIDIG, PHYLLIS D., S.B. (Hunter Coll.) 1938. Special T. of Speech Improvement, El. and Jr. High Sch. of N. Y. C. 54 Livingston St., Brooklyn, N. Y.

(A) WEINER, RUTH HOMMEL (Mrs. J. K. Weiner), S.B. (Northwestern) 1932. Dir. of Speech Clin. 1443 Wrightman St., Pittsburgh, Pa.

(A) WELLINGTON, RUTH L., B.A. (Mich. Univ.) 1940. Clinical Asst., Speech Clin., Univ. of Mich., Ann Arbor, Mich. 771 13 B Parkway, Greenbelt, Maryland.

(A) WELLS, CHARLOTTE GERTRUDE, B.F.A. (Univ. Neb.) 1931, M.A. (Univ. Wis.) 1938, Ph.D. (ibid) 1941. Dir. of Speech Clin., Instr. of Speech, Mt. Holyoke Coll. South Hadley, Mass.

(F) WELLS, EARL WILLIAM, A.B. (Iowa) 1921, A.M. (Wis.) 1927, J.D. (Iowa) 1928. Dir. of Speech Clin. and Prof. of Speech, Oregon State Coll. Country Club Heights, Corvallis, Oregon.

(A) WEST, ELIZABETH HARPOLE, Ph.D. (Univ. of Chicago) 1937. T. of Speech Cor., Chicago Pub. Sch. 7834 S. Ridgeland Ave., Chicago, Ill.

(F) WEST, ROBERT WILLIAM, Ph.D. (Wis.) 1925. Dir. of Speech Clin. and Prof. of Speech Pathol., Univ. of Wisconsin, Madison, Wis.

(A) WESTLAKE, HAROLD, A.B. (Mich. State Normal Coll.) 1928, S.M. (Mich.) 1931, Ph.D. (ibid) 1938. State Dir. Speech and Hearing. 1512 No. St., Harrisburg, Pa.

(A) WHITAKER, BESSIE LEWIS, A.B. (Stetson) 1906, A.M. (Univ. of N. C.) 1907. Assoc. Prof. of Speech, Univ. of Mich, 1030 E. Huron St., Ann Arbor, Mich. 1007 E. Huron St., Ann Arbor, Mich.

(A) WHITTAKER, RUTH D. (Mrs. Clarence W. Bergquist).

(A) WHITTEN, IDA E., A.B. (Nebraska) 1928, A.M. (ibid) 1934. Speech Correction Dept., Pub. Schools, Racine, Wis.

(A) WICKMAN, NESTOR ALFONSE, A.B. (Mich.) 1936, S.M. (ibid) 1937. T. of Speech Cor., Whiting Pub. Sch. Whiting, Indiana.

(F) WILE, IRA S., A.B., B.S. (Rochester) 1898, M.S. (ibid) 1908, M.D. (Univ. Penn.) 1902. Dir. of Speech Clin. of Health Class at Mt. Sinai Hosp.; Lecturer on Disorders of Conduct and Personality, Columbia Univ., Brooklyn Coll., and Hunter Coll. 264 W. 73rd St., New York City.

(A) WILKE, WALTER H., A.B. (Wis.) 1928, A.M. (ibid) 1929, Ph.D. (Columbia) 1934. Asst. Prof. of Speech, N. Y. Univ., Washington Sq., East, New York City.

(A) WILKIE, LILLIAN R., S.B. (Wayne) 1936. Pub. Sch. T. of Speech Imp. 3311 Gladstone Ave., Detroit, Mich.

(A) WILKINSON, WM. JUSTUS, A.B. (Univ. Denver) 1934, A.M. (ibid) 1938. 601 E. 8th St., Loveland, Colo.

(A) WILLIAMS, GRACE M., A.M. (Northwestern) 1935. Dir. of Speech Clin. and Instr. in Speech, E. Ill. State T. Coll. 1502 Fourth St., Apt. 1, Charleston, Ill.

(A) WILLS, MARY MARGUERITE, A.B. (Univ. Ill.) 1924, M.A. (Northwestern) 1926. Assoc. Prof. of Speech, Florida Southern Coll., Lakeland, Fla. 801 S. Johnson Ave., Lakeland, Fla.

(A) WILLSEA, MARY A., A.B. (Denver) 1924. Pub. Sch. T. of Speech Cor. 4669 Quitman St., Denver, Colo.

(A) WILSON, D. KENNETH, A.B. (Western State T. Coll.) 1939. Pub. Sch. T. of Speech Cor., Alexandria, Minn. 913 Broadway, Alexandria, Minn. 1952 Fairfield Ave., Kalamazoo, Mich.

(A) WILSON, LORAINE A., B.S. (Ind. Univ.) 1939. T. of Speech Cor., New Albany, Ind. R. 1, Frankfort, Ind. 516 E. 13th St., New Albany, Ind.

(A) WILSON, MARGARET BOYD (Mrs.), A.B. (Emerson) 1937. N. H. Mental Hygiene Clin., Dept. of Psychology. 105 Pleasant St., Concord, N. H.

(A) WINICK, PEARL, B.L.I. (Emerson Coll.) 1941. Private Practice, 42 Asylum St., Hartford, Conn. 35 Burlington St., Hartford, Conn.

(A) WOLF, HELEN LEE, B.A. (Univ. of Wis.) 1939. T. of Speech Cor., Chicago Board of Educ. 415 Aldine, Chicago, Ill.

(A) WOKURKA, ROSE ANNE, A.B. (Coll. of St. Catherine) 1932, A.M. (Minn.) 1934. Coll. of St. Benedict, St. Joseph, Minn.

(A) WOOD, ALICE LOUISA. Special Teacher of Speech Improvement, New York City. 8786 153rd St., Jamaica, N. Y.

(A) WOOD, ALICE MORTON, B.S. in Ed. (Boston Univ.) 1930. T. of Speech Cor. and Asst. in the Clinics, Univ. of Boston. 88 Harvard St., Newtonville, Mass.

(F) WOOD, HARRY THOMAS, A.B. (Ill.) 1915, A.M. (Wis.) 1923. Dir. of Speech Clin. and Asst. Prof. of Public Speaking, Mich. State Nor. Coll. 938 W. Forest Ave., Ypsilanti, Mich.

(A) WOOTTON, MARY HOOPER (Mrs. Richard Lambert Masland).

(A) WRIGHT, JULIA M., A.B. (Denver) 1928. Pub. Sch. T. of Speech Cor. 4669 Quitman St., Denver, Colo.

(A) YEDINACK, JEANETTE GREENOUGH (Mrs.), B.A. (Denison Univ.) 1931, M.A. (T. C., Columbia Univ.) 1934. Private Practice, 34 Prospect St., East Orange, N. J. 49 Prospect St., East Orange, N. J.

(A) YOAKAM, DORIS G., A.B. (S. Calif.) 1931, A.M. (ibid) 1932, Ph.D. (ibid) 1935. Dir. of Speech Clin. and Prof. of Speech, N. Ill. State T. Coll., De Kalb, Ill.

(A) YOUNG, ADELBERT JACOB, A.B. (Wis.) 1924. Dir. of Pub. Sch. Speech Clin. 708 E. Fourth St., Superior, Wis.

(A) YOUNG, EDNA HILL. Dir. of Speech Clin., Hill-Young School, 2716 Ellendale Pl., Los Angeles, Calif.

(A) ZEILE, ADELAIDE, A.B. (Western Reserve Univ.) 1920, A.M. (Wis.) 1930. Pub. Sch. T. of Speech. 11508 Mayfield Rd., Cleveland, Ohio.

(A) ZEITLIN, ROSALYN ROSENTHAL (Mrs. N. S. Zeitlin), A.B. (Wis.) 1930, A.M. (Northwestern) 1936. Asst. Dir. of Speech Clin., Michael Reese Hosp. 2176 Oak Knoll Terrace, Highland Park, Ill.

(F) ZERLER, MARY LOUISE, S.B. (T. Coll., Columbia) 1931, A.M. (ibid) 1936. Pub. Sch. Dir. of Speech Cor., Yonkers, N. Y. 517 W. 113th St., New York City.

(A) ZIMMER, CATHERINE H., A.B. (Mich.) 1932, A.M. (Northwestern) 1939. T. of Speech Cor., Shorewood Pub. Schools. 4305 N. Marlborough Dr., Milwaukee, Wis.

(F) ZIMMERMAN, JANE DORSEY (Mrs. Max Zimmerman), S.B. (Columbia) 1922, A.M. (ibid) 1923. Assoc. in Speech, T. Coll., Columbia Univ. 501 W. 120th St., New York City.

NECROLOGY

MAX A. GOLDSTEIN

FREDERICK B. ROBINSON